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## NEWS

# E-mail bust generates privacy rights uproar

BY J. A. SAVAGE  
CW STAFF

SAN JOSE, Calif. — When deputies from the Riverside County, Calif., coroner's office raided the offices of the Alcor Life Extension Foundation, they were looking for the head of a possible murder victim, Dora Kent. They did not find the head, which had been cryogenically frozen at death in hopes of later resuscitation. Instead, they took the foundation's eight personal computers, including the electronic mail stored within.

As a result, three San Jose computer consultants, led by Keith Henson, filed a class action lawsuit against the Federal Bureau of Investigation last month for failing to investigate what they claim was a violation of the Federal Electronic Communications Act of 1986.

Henson and his co-plaintiffs contend that while the county's search warrant allowed seizure of computers and storage devices, it did not specify "implicating electronic communications and thus violated federal law."

The consultants said they spent a year trying to get the FBI to check into the country's legal standing in seizing private communications without a warrant. According to the lawsuit, the U.S. Attorney's Office provided "no substantive response" to Henson's request for investigation. A letter dated Nov. 4, 1988, and addressed to Rep. Norman Mineta (D-San Jose) from the U.S. Department of Justice said that "there is no

competent evidence upon which to base a federal prosecution."

The U.S. Attorney's Office, on behalf of the FBI, has yet to file an answer to Henson's complaint and refused to comment on the lawsuit.

The class-action suit seeks to represent all users of E-mail as well as individuals. The non-profit organization will sue all or part of the bodies of its members at death at very low temperatures "until medical technology exists so they can be revived," according to Hugh Nixon, Alcor board member. "Evading death is a very serious matter," he said.

Specialists in computer security law say that the Electronic Privacy Act is ill-defined and has little case law to back it up.

Jonathan Wallace, a New York attorney specializing in computer-related law, said the act's biggest problem is that "it doesn't clarify E-mail such as Alcor's status as a closed system."

He added that if the judge inspects the warrant was not told of the E-mail existence, then Henson "has a decent argument."

The act requires that a warrant can be issued for E-mail "only if a governmental entity shows . . . relevance to a legitimate law enforcement inquiry."

The lawsuit asks that the FBI investigate the actions of Riverside County law enforcement in this matter. Meanwhile, the county, which is not named in the case, has handed its investigation into the possible homicide of Dora Kent to the grand jury.

# Sperry patriarch dies

*Probst built \$5 billion firm and guided merger*

BY NELL MARGOLIS  
CW STAFF

SALT LAKE CITY — Gerald G. Probst, the Sperry Corp. executive credited with shaping the former conglomerate into a \$45 billion computer giant and shepherding it through the 1986 merger that created Unisys Corp., died in his sleep at his home here early last week. Probst was 66 years old. The cause of his death has not been determined.

A decorated World War II pilot who piloted his electronics expertise as a career officer in the U.S. Air Force's Research and Development Command before joining Sperry in 1961, Probst is remembered as a reserved, considerate executive who made a difference without making a fuss.

Moving from Sperry's de-

fense side of the business to the commercial side and straining increasingly responsible positions within the firm, Probst focused on establishing Sperry's commercial products in a credible market position. As chief executive officer of the company in the early 1980s, Probst spearheaded the restructuring of the conglomerate into a technology-oriented company, divesting it of farm equipment and hydraulics divisions in the process.

"That was a very bold move for him because a lot of people on the board were associated with those companies," recalled Joseph Kruger, who served as president of Sperry during Probst's tenure.

Shortly after the merger was consummated, Probst retired from Unisys. However, he remained a member of the Unisys International Advisory Board.

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# Rolm users look to Siemens

BY ELISABETH HORWITT  
CP STAFF

Despite an unsettling silence from prospective partners IBM and Siemens AG, some Rolm Systems users are eager for the West German electronics firm to move in and fill the service vacuum they have experienced under IBM's regime.

Last December, the two vendors proposed the sale of Rolm manufacturing and development arm to Siemens and the formation of joint service, marketing and research and development organizations. Their subsequent silence, while awaiting Federal Communications Commission approval of the proposals, has prompted some to speculate that IBM is backing away from both Rolm and telecommunications.

However, some users seemed less concerned with how soon IBM will step down than with how soon Siemens will step up to its Rolm responsibilities. "We're hoping that Siemens will bring ISDN to the 9751 faster than IBM might," said Ferrel Malicky, director of communications systems at Brigham Young University.

"I can see why IBM is bailing out of Rolm; I think [the 9751] is a piece of garbage," said William Fallon, telecommunications coordinator at Southern California Gas Co., where the two partners made a massive 9751 purchase. "I would just as soon IBM bailed out completely. I've heard a lot of good things about Siemens, and I hope they'll step up with some kind of

magic to fix these things," he added.

The magic that Siemens apparently contemplates in transferring the best features of its own Satin and Hicon lines to the Rolm private branch exchanges (PBX), and vice versa, according to company spokeswoman Susan Goff. "Both [firms] have strengths. For example, Rolm Phonemail is fully integrated into the 9750, while we OEM our own Phonemail. Satin has stronger data communications."

#### Resuscitation

The company plans to link and provide common technological enhancements to its product lines, rather than converging them.

This is clearly meant to reassure users who envisioned Siemens treating its new Rolm PBX line as back numbers — as IBM reportedly has treated the older Rolm models. "Users would like to see Siemens restore support that Rolm was previously offering for its older 8000 and 9000 PBX lines, which IBM has been moving away from," said one telecommunications manager, who requested anonymity.

But the big question, analysts said, is how long IBM intends to share Rolm PBX support with Siemens. "Users are asking, 'Is IBM dumping Rolm or is it serious about creating a synergy with Siemens?'" said Bill Redman, senior director of Local Area Communications at Gartner Group, Inc. in Stamford, Conn. "The pessimistic view is

that IBM will give lip service to the venture and bow out in a few years, leaving Siemens to manage Rolm, lose market share to the [Rolm] 9751 with Siemens PBXs."

IBM perplexed the industry by "being so gung ho about shipping 9751s," then moving to rid itself of Rolm, according to Eric Schmidkede, product director at Eastern Management Group.

When the high-end PBX began shipping last April, Rolm jumped from third place in terms of market share — a spot it had held since IBM bought it in 1985 — to the No. 2 slot, just above Northern Telecom, Inc. and behind AT&T, according to the Parapany, N.J., market research firm (see chart).

But while the 9751 was sales filling a crucial gap in Rolm's product line, IBM also faces costs by selling the PBXs well below cost, particularly to its own large manufacturing shops, Schmidkede said. Thus, many users feel that IBM's move to form a jointly owned marketing

and service department with Siemens is simply "an interim step to divesting itself of the entire Rolm unit," he added.

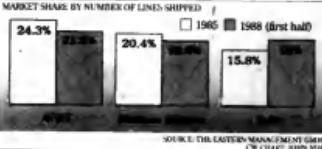
#### Linking PBXs to hosts

Role PBXs will continue to round out IBM's telecommunications offerings "product line and IBM plans to work with Siemens to deliver an promised 9751 enhancements such as Integrated Services Digital Network, according to Frank Elliott, director of communications systems at IBM's marketing and services group. The Rolm switches — as well as other vendors' PBXs — will also play a role in IBM's plans to link PBX networking with host applications, he added.

However, Elliott indicated that IBM might not be committed to servicing Rolm PBXs directly, as one of its own products, over the long term. He cited IBM's Telecommunications Services Network Support program, which will fall, last fall, as users move away from networks on their voice/data networks and contact the right vendor to provide service. Rolm, he said, "would come under that umbrella."

#### Close doesn't count

*Sales begin tapered in 1985, Rolm increased market share but did not pay off enough to meet IBM*



## Friday the 13th virus back in Silicon Valley

BY MICHAEL ALEXANDER  
CP STAFF

Dozens of firms in California's Silicon Valley were still battling last week to quash a virus epidemic that struck personal computers Jan. 13.

"The Friday the 13th virus has become a massive problem over the entire Valley," said John McAfee, chairman of the Computer Virus Industry Association of Santa Clara, Calif. "Seventeen companies and scores of individuals have contacted me about this latest epidemic."

Three machines and some 300 disks were wiped clean of the virus at EG&G Geometrics, Inc. in Sunnyvale, Calif., and Lynn Edwards, production supervisor. The virus corrupted programs on one of the personal computers at the same time it

was being used in a marketing presentation to senior executives of a prospective client. The contract bid, the culmination of several months' work, had to be rescheduled.

"We found out that we were infected when we suddenly lost all of our files," Edwards said. "The virus has since been cleared out, and we are in the process of putting things back together again."

Edwards refused to say exactly how the virus managed to work its way into the company's computers. "I am not absolutely certain, so I am reluctant to say where the virus came from because of the legal implications," he said.

McAfee said that several of the firms and individuals that contacted him reported they had either purchased PCs or had their PCs serviced at a popular

computer retail operation. He added that the outfit may have unwittingly transferred the virus to its customers' machines while formating hard disk drives on new machines or when running diagnostics programs on personal computers being repaired. The manager at the retail operation identified by McAfee said he had no knowledge of the virus incidents.

#### Wipe-out

The virus, which contained a "time bomb" set to go off on Friday, Jan. 13, was designed to infect and wipe out programs as they were executed. The same virus reportedly also hit hundreds of PCs in the UK on the same day.

The virus is thought to be a modified version of the Israeli or Jerusalem virus that plagued computer users in Israel over a two-month period last year.

The virus, believed to have been concocted as a political protest, was set to go off on Mar. 13, 1988, the day before Israel celebrated the 40th anniversary of its founding.

#### CORRECTIONS

Due to an editing error, the Solbourne Series 4/600 was incorrectly referred to as the Sun-4/600 in several references [CW, Jan. 16]. Product data should have appeared as follows:

The machines include the eight-model, one- to four-processor Series 4/600, which offers between 9.5 million and 30 million instructions per second (MIPS) and is capable of producing 1.6 million to 4.7 million floating-point operations per second.

By way of comparison, a two-processor Series 4/600 with 16M bytes of memory, a 32M-byte disk and a 150M-byte cartridge tape yields up to 17 MIPS for \$51,400 — bettering the performance of a similarly configured Sun-4/260 by 70% at a 14% price break, a Solbourne spokesman said.

Japanese electronics giant Matsushita Electric Industrial Co., which owns 52% of the firm and is manufacturing the Series 4, funded Solbourne's development effort with \$11.75 million.

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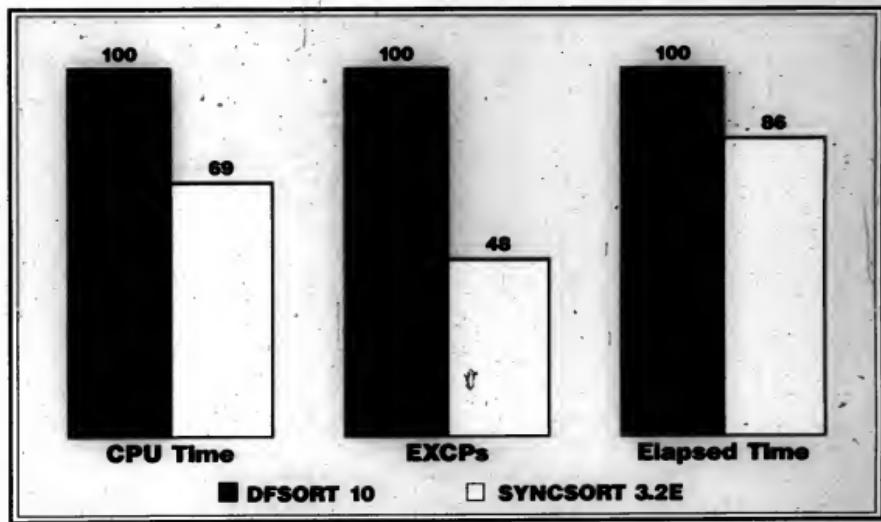
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# SYNCSORT ESA vs. DFSORT on a 3090 with MVS/ESA



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# Apple's SE/30 bridges Mac gap

BY JULIE PITTA  
CW STAFF

**SAN FRANCISCO** — Apple Computer, Inc. last week introduced a Macintosh that users say is a bridge between the economy of entry-level systems and the power of the pricier Macintosh II.

Additionally, during introductions at Macworld Expo here, Apple unveiled enhancements to A/UX, its version of the Unix operating system, and Macworkstation, a tool for developing applications that allow the Macintosh to retain its "look and feel" when connected to a miniframe.

An extension to the Mac SE line, the Mac SE/30 is powered by Motorola's 68030 microprocessor running at a clock speed of 16MHz. Apple officials said it is up to four times faster than the entry-level Mac SE, which is based on the Motorola 68000. Apple officials have said the Mac SE, which features the traditional Mac look — a single unit for the monitor and base — will form the basis of one product family.

The modular Macintosh II has spawned a second product family. Mac SE and II users will be offered upgrade packages that allow them to migrate to more fully featured members of each respective product family. An upgrade kit allowing Mac SE users to attain Mac SE/30 functionality will be announced in the spring, officials said.

The Mac SE/30 will be offered in three configurations: an entry-level version with a single floppy disk drive; a mid-range model with a 30M-byte hard drive; and a high-end version with an 80M-byte hard drive. They cost \$4,369, \$4,869 and \$6,569, respectively.

The entry-level and 30M-byte hard drive configurations offer 1M-byte of random-access memory, while the 80M-byte hard drive model comes standard with 4M bytes of RAM.

All three models offer Apple's 1.44M-byte "high-density" floppy drive, also called the "Superdrive," which can read, write and format Microsoft Corp. M35 DOS and OS/2 diskettes. Used with the utility Apple File Exchange, Mac users can access and transfer MS-DOS and OS/2 files.

While Apple has been bashed for its pricing structure, the prices of the new systems along

**W**hile Apple has been bashed for its pricing structure, prices of the new systems, along with price cuts up and down its line, are up to four times faster than the entry-level Mac SE, which is based on the Motorola 68000. Apple officials have said the Mac SE, which features the traditional Mac look — a single unit for the monitor and base — will form the basis of one product family.

A criticism of the first version was that many Mac applications would not run under A/UX as originally promised. Also, users felt that it did not take advantage of the user-friendly features of the Mac operating system.

The new version will ship in March at a price of \$955 on diskette. Support of X Window Version 11, Release 3 is an additional \$329.

Howlett said the 68030 will offer users enough power to take advantage of an anticipated new version of the Mac operating system, which will reportedly offer multitasking capabilities.

Edwin Sund, senior systems engineer for Weyerhaeuser In-

formation Systems' PC support group, said the Mac "is improved and is a 'bridge' to where you really need it is in networking and database applications."

"We're not going to dump our old Macs and buy [Mac SE/30s]," he maintained. "It'll be the workstation shuffle. The old Macs will be handed down to people who don't need the power, and we'll replace them with the newer models."

### Macworkstation 3.1

Macworkstation Release 3.1 adds enhancements that will allow developers to create applications more simply than previously. Developers can paint dialogues directly on the screen rather than enter code to generate dialog boxes. Also, an event handler offers local intelligence for both applications.

A new release of A/UX adds support of X Window System Version 11, Release 3; offers the ability to run HyperCard and other disk accessories from the Apple Toolkit; and eases the development of Mac applications able to run on both the Mac operating system and A/UX.

A criticism of the first version was that many Mac applications would not run under A/UX as originally promised. Also, users felt that it did not take advantage of the user-friendly features of the Mac operating system.

The new version will ship in March at a price of \$955 on diskette. Support of X Window Version 11, Release 3 is an additional \$329.

As always, Apple is setting high expectations for itself. "We believe it is our fate to develop the most influential intellectual and cultural tools known to mankind," said Jean-Louis Gassée, president of Apple's Products Division.

# DEC settles VAXBI suit

BY NELL MARGOLIS  
CW STAFF

Digital Equipment Corp. and EMC Corp. settled their legal differences in court last week, with each company declaring itself the winner.

Under the terms of the accord announced last week, EMC acknowledged infringement of DEC technology rights; the \$1.27 million firm agreed to pay DEC \$12,000 for patent infringement and to cease making, using or selling the VXS2 and VXS3 memory products.

"Our hearts said fight, but our brains said settle," said W. Paul Fitzgerald, vice-president of finance at Hopkinton, Mass.-based EMC. He contended that his company does not believe it

infringed on DEC's property rights but was nevertheless willing to concede to the charge to forestall a costly litigation that could lead to no better than a Pyrrhic victory.

The products in question, Fitzgerald said, had produced so little revenue that they had already been targeted for deletion from the EMC line. On the other hand, facing DEC in court was likely to cost at least four times what EMC paid in the settlement, he added.

In related news, DEC and EMC filed a consent judgment and settlement agreement with regard to EMC's outstanding breach of contract claims against DEC. Both parties agree to uphold the original contract, which, Fitzgerald said, was EMC's goal.

# Wang

FROM PAGE 1

mid-range dollars.

"For the first time in a decade, IBM has a competitive mid-range offering," said Michael Geran, an analyst at Nikko Securities in New York. "That's causing trouble for everyone. DEC is responding this week. Unisys already responded and now Wang will. It's a cat fight."

The new system is the second recent offering from Wang that goes up against the Application System/400, IBM's rising star in the mid-range arena. The company introduced the low-end VS/5000 shortly after the AS/400 announcement last year.

According to Marty Grun, vice-president of The Sierra Group, Inc. in Tempe, Ariz., the company needs more than "a new marketing" to help it along. "They need to focus on new business, instead of depending on upgrades," he said. "They

fixed up their financials somewhat in their last year by going back to the simplified base. That's the answer. You can't keep getting blood from a turnip."

The VS/10000 is currently installed at several beta-test sites, including Admiral Cruises in Miami, according to a Wang spokesman. David Breeze, MIS director at Admiral Cruises, confirmed that his company installed a system in December and recently went into production mode with it. He would not provide more details because of a non-disclosure agreement.

The Wang spokesman said the VS/10000 announcement will include software enhancements as well as a new disk subsystem that will accommodate 1G-byte disks. The high end will run the VS operating system as well as VS/VM, which allows a Wang system to run both VS and its Unix implementation concurrently. The system will be air-cooled and based on emitter-cooled logic technology, he added.

# Bankruptcy

FROM PAGE 1

when it begins to stumble, creating a chain reaction of stockholder, lender and customer doubts, affecting each other.

"When you lose your credibility, all those things begin to very quickly," said Richard Koenig, chairman of Capital Associates, Inc., the third-largest U.S. independent lessor. "It just shows you how fragile that credibility is."

Some lessors saw a difference in service and responsiveness very soon after the CMI buyout. "They spread their people so thin that it wasn't possible to maintain the same level of contact," with customers, said Rich Mudrow, purchasing coordinator at Pacific Telecom in Vancouver, Wash. "They had up

too much portfolio for the cash flow they had and couldn't make the pieces fit."

The CMI acquisition strategy worked for a while, as CIS generated record revenue and profits in the first six months after finalizing the deal. In August 1988, CIS even felt confident enough to add two smaller acquisitions for a total of \$5.2 million in that period.

But things began to unravel in CIS' 1989 fiscal year, begun March 1, 1988. The biggest problem was the \$110 million former CMI debt that CIS agreed to take on as part of the acquisition.

To service that debt, CIS needed to increase both business

**Bump in the road**  
*Continental Information Systems' acquisition of CMI has led to red ink and shelter from creditors*

	Revenue (\$ million)	Profit/loss (\$ million)
Q3 '88*	\$27	\$3.4
Q4 '87	\$90.6	\$3.8
Q3 '87	\$61.1	\$3.9
Q2 '88	\$91.4	\$3.8
Q1 '88	\$158.9	\$6.6
Q4 '86	\$117.3*	\$4.8
Q3 '86	\$115.6	\$7.9
Q2 '86	\$812.2*	-\$2.7

volumes and margins," said Thomas J. Donovan, director of investment banking services at Framingham, Mass.-based mar-

ket research firm International Data Corp.

"The 1988 market did not provide the opportunities," he said.

Many lessors felt the pinch in 1988 as a newly aggressive IBM Credit quoted low rates that cut profit margins to the bone [CW, Oct. 10, 1988].

In addition, Donavan said, leasing customers expected IBM's high-end 3090 model much earlier in the year and dramatically shifted their leasing activity to the 3090 5 series because volume shipments in the fourth quarter.

CIS also suffered from mounting internal woes related to CMI, including incompatible computer systems. According to a source close to CIS, the company has not been able to integrate its Hewlett-Packard Co.-based information systems with CMI's

IBM-based applications.

CIS had acquired CMI without CMI's top management, which lost a court fight to block the sale. Several top executives immediately formed competitor Encore International, Inc. and eventually hired CMI founder Edward Cherney. Although many ex-CMI employees stayed with CIS, several key marketing managers were to Encore International.

CIS may have the potential to satisfy its creditors and exit Chapter 11, but the future beyond that remains highly uncertain. A deep-pocketed acquirer may be the only answer to restore the credibility that lessors demand.

"Any lease transaction, we take a jaundiced view of any company that appears to be having financial difficulty," Pacific Telecom's Mudrow said.

# Apple takes a slice off Macintosh price

BY JULIE PITTA  
CW STAFF

**SAN FRANCISCO** — Apple Computer, Inc., has cut prices on several models of its Macintosh personal computer last week to coincide with the debut of a system at Macworld Expo.

The reduction comes nearly four months after the company announced a dramatic price increase, which it blamed on the high cost of memory components. That hike was met with widespread criticism from Apple customers.

While users were pleased with Apple's

pricing changes, investors were apparently pleased off by the company last week. Releasing its latest quarterly earnings report, Apple indicated that gross margins had decreased, prompting a decline in its stock price (see story page 93).

Apple USA President Allan Loren said last fall's increase altered customer buying patterns, turning them from more expensive, fully featured Macintoshes and toward cheaper, entry-level models. As a result, Apple is selectively dropping prices to "fully expand momentum" for the line, Loren noted. Also, memory component costs are falling, a trend that is

expected to continue, he said.

Prices for four memory-loaded Macintoshes were reduced. The Motorola, Inc. 68000-powered Mac SE with 2M bytes of random-access memory and a 40M-byte internal hard disk drive was reduced to \$4,369 from a previous level of \$5,069, a decrease of 14%.

A Motorola 68020-based Mac II, with 4M bytes of RAM and a 40M-byte internal hard drive was cut to \$7,389 from \$8,069, a reduction of 9%.

Two models of the recently introduced Mac IIX, a Motorola 68030-based system, were also affected. The price of a

Mac IIX with 4M bytes of RAM and a flexible disk drive was trimmed by 10% to \$6,969 from an earlier price of \$7,769. A Mac IIX with 4M bytes of RAM and an 80M-byte hard drive was slashed to \$7,869 from \$9,369, a 16% drop.

Apple also cut prices on certain memory expansion kits for Macintoshes and a Laserwriter printer by 17%. Hard disk drive upgrades for the Mac were reduced between 18% and 24%.

Users expressed pleasure at the price cuts. "It couldn't happen at a better time," said Edwin Soud, senior systems engineer at Weyerhaeuser Computer Systems' PC support group. "We think there may be a downturn in the economy. We don't want to spend any more money than we have to."

## Open Link firms Novell, Apple alliance

BY JULIE PITTA  
CW STAFF

**SUNNYVALE, Calif.** — Apple Computer, Inc. and Novell, Inc. last week solidified their relationship by introducing the jointly developed Open Link Interface specification for third-party developers.

Introduction of the specification coincided with Macworld Expo in San Francisco and represents the second significant link between the two companies. Earlier this year, Novell introduced Netware for Apple's Macintosh, allowing Macs and IBM Personal Computers to coexist in a local-area network through the use of Novell communications software.

Novell also introduced source-routing drivers for IBM Token-Ring networks jointly developed with Ungermann-Bass, Inc. The product is said to allow users on Token-Ring networks running Netware to communicate across bridges using IBM Token-Ring Network Bridge software. The drivers are scheduled to be available sometime this quarter for \$75.

### Guidelines for development

The Open Link Interface is targeted at developers of LAN protocols and adapters. Officials at both firms said it offers guidelines for developing the interface between LAN adapters and protocols on Microsoft Corp. MS-DOS and IBM OS/2 platforms. As a result, developers using the Open Link Interface can design products that interoperate, they added.

Nina Burns, vice-president of InfoNetia, Inc., a Santa Clara, Calif., market research firm, and Apple's involvement in Open Link indicate the firm's commitment to networking. "It provides a really good platform for independent third-party card makers and LAN operating systems other than Novell," she said.

The specification is available to LAN vendors. A new release of Netware scheduled for later this year will include the implementation of the Open Link specification. A developer's kit for protocol vendors that will include Netware is expected in the second quarter for \$3,000. A developer's kit for LAN adapter vendors including Netware is expected in the second quarter for \$7,500.

## VSAM DATA COMPRESSION Without the CPU Overhead

### Solution 3 The Incredible Shrinking Machine



DATA SET NAME	SPACE SAVINGS		VSAM TWS		IBM TWS		% SAVINGS	TOTAL RECORDS	AVERAGE LARGEST	MAX LREC
	ALLOC	USED	STD	COMP	STD	COMP				
DIR. CLUSTER	3715	3715	2765	1580	25	10		476407	223	550
DISKFILEMASTER	21600	10000	12700	6495	50	50		308610	110	150
TABLE CLUSTER									140	140
NAME ADDRESSFILE	9915	9915	6495	1675	50	75		400000	100	2000

The VSAM simulation report displays the current size and data characteristics of your VSAM files and how much space IBM will save you with and without data compression.

\* To see your VSAM usage, send for INNOVATION's free VSAM reporting program.

## NEWS SHORTS

### Morris traps Soviet know-how

A Soviet computer science course, which has been under development by Soviet scientists for five years, is getting a careful look-over by U.S. computer scientists — but no military intelligence decoders will be needed for this effort. The William C. Norris Institute here, named after the Control Data Corp. pioneer, announced last week that it has concluded negotiations with the Soviet Academy of Sciences and Zolotar Computer Centre of Moscow to establish a joint U.S./USSR venture to develop and market computer technology-based software and courseware in both the East and West. The first product will be based on a Soviet course that offers a unique approach to teaching computer science, according to William C. Norris, chairman of the institute.

### Banks launch EDI service

First Bank System (FBS) has entered into a joint venture with Washington Electric Corp., Hawthorne Financial Services, Citizens and Southern Bank in Atlanta and Marine Mutual Bank in Buffalo, N.Y., to launch an electronic data interchange (EDI) service for the banking community. Headquartered in Atlanta, the new company, Hawtinger EDI Service, is offering InTouch EDI, which consists of personal computer software and a network service compatible with the ANSI X.12 formats. It reportedly will link to other EDI systems. In particular, Hawtinger EDI hopes to attract smaller firms that typically do not use EDI for other than payment services. FBS, along with the other two bank partners, are the only U.S. banks that have ventured into full EDI marketing, according to Terry Sandrik, a senior vice-president at FBS Cash Management Corp. Only a small percentage of U.S. financial institutions can receive corporate trade payments and properly process remittance information, he added.

### Sprint enters price war

U.S. Sprint Communications Co. slashed its Clearline T1 service prices last week, offering customers potential savings of up to 66% over AT&T, the carrier and. Base prices for the service will fall as much as 25%, and volume prices will come down by as much as 48% as of April 1, Sprint said. The cuts were made in response to AT&T's recent spike of price reductions for its Ascent services, as well as increasing competition from independent telephone companies, a company spokesman said. MCI Communications Corp. has yet to respond to AT&T's cuts with a similar tariff.

### Microsoft powers up LANs

Microsoft Corp. has announced a minor upgrade for its OS/2 LAN Manager that reportedly will enable LAN Manager-based network to support a virtually unlimited number of users and applications running concurrently. The upgrade is slated to ship to OEMs in March and will be offered to LAN Manager sites at no charge. According to company officials, the upgrade is used to increase the number of "live handles" in LAN Manager from the current 255 up to 64,000 and has no impact on either activities such as copying files to a workstation. File handles are a mechanism used to enable programs to access files and vary in number according to the application in use. This, in turn, regulates the actual number of users who can concurrently access a single package.

### Wang into disaster recovery

Wang Laboratories, Inc. announced a program that provides equipment, services and personnel to restart computer operations following damage to Wang equipment. The fee for the Disaster Recovery Services program, an option to Wang's hardware maintenance service contract, is said to be 1% of the total cost of the customer's Wang equipment. The cost includes emergency repairs and replacement, shipping, installation and support time, the company reported. It will cover the expense of using an alternative processing site and ensures that one can a customer's normal processing costs. Wang said on-site response to a customer's call would take place within an average of four hours.

## X.400 users get E-mail bridge

BY MITCH BETTS  
CW STAFF

Two electronic mail vendors, AT&T and Dialcom, Inc., announced the first commercial interconnection between E-mail services using the CCITT X.400 protocol in the U.S., which will enable users of the different E-mail services to exchange messages.

The interconnection will be commercially available during the first quarter of this year, the vendor said.

AT&T spokesman Jim McGinn said there will be no additional charge for AT&T Mail users who send messages to Dialcom's E-mail service. Pricing has not been determined for messages sent from Dialcom to AT&T Mail, said Karen Chan, director of marketing services at Dialcom in Rockville, Md.

AT&T's decision reflects a trend among electronic messaging services providers to not impose charge subscribers who are sending messages to competing electronic data interchange services.

It remains to be seen how much user demand there is for E-

mail interconnection, Chan said, but she noted that the Aerospace Industry Association's initiative to create a multivendor E-mail network for the industry is an example of a business application for interconnected E-mail services [CW, Jan. 16]. Both AT&T and Dialcom are involved in that project.

X.400 connections between different E-mail services have been technically feasible since late 1987, but it has taken until now for vendors to hammer out agreements on revenue distribution and other difficult administrative issues, according to Michael F. Coughlin, executive director of the Electronic Mail Association in Washington, D.C.

### Too many cooks

Another issue stalling X.400 interconnection is that mail providers have been taking different approaches to building X.400 gateways. Even though the links technically conform to the standard, they cannot talk to each other, users have charged.

AT&T and Dialcom — apparently the first to develop a revenue distribution deal — have been leaders in the industry's In-

ternational Administrative Management Domain Operations Group, which is working to develop agreements on financial accounting between interconnected E-mail services.

In addition, AT&T and Dialcom announced an agreement in which users of FTS-Mail, the E-mail service AT&T will provide to the federal government under the Federal Telecommunications System 2000 contract [CW, Dec. 12], can get access to Dialcom's news and database services.

For example, FTS-Mail users will be able to access Dialcom's Procurement, which allows government agencies to award solicitations directly to a typesetter for publication in the government bulletin *Contract Business Daily*.

The price of access to Dialcom's database services reportedly is still under negotiation, the vendors said.

Dialcom, which already provides information services and E-mail for 62 federal agencies, will also provide X.400 connections between its current federal customers and FTS-Mail users, a spokeswoman said.

service services. HP is also encouraging developers to build integrated OS/2 and Unix-based applications.

Also, Transmission Control Protocol/Internet Protocol port coupled with Arpanet services support will enable PC users to avoid gateways when accessing applications and resources on compatible Unix-based office, engineering and manufacturing computers.

Both packages will be supported under HP's Openview. "HP's version of LAN Manager with links into Openview will allow users to centralize LAN management," said David Passmore, a spokesman for Ernst & Whitney in Fairfax, Va.

Scheduled to be available in the second half of the year, HP LAN Manager software will be priced under \$3,000.

## HP opens LAN doors to PC workstations

BY PATRICIA KEEFE  
CW STAFF

Hewlett-Packard Co. last week outlined a two-phased approach to OS/2 connectivity that encompasses support for DOS/2 and Unix. This support extends to a mix of networks, including Ethernet, token-ring and broadband systems.

HP's LAN Manager, a version of Microsoft Corp. OS/2 LAN Manager, will enable DOS and OS/2 workstation users to access OS/2 file servers [CW, Jan. 16].

In the second phase, HP LAN Manager will be integrated with

HP LAN Manager/X Operating System 3 (LMX), a Unix version of LAN Manager co-developed with Microsoft. This reportedly will enable DOS and OS/2 users to go an extra step and access Unix-based servers such as the HP 9000 minicomputer.

"OS/2 is important to us," said Hershell Kenny, a system supervisor at Allied Signals, Inc. in Morristown, N.J., and an HP LAN Manager user. "Anything that will help us connect our PCs to our minis will be of assistance."

Together, the two software packages provide users with access to increasingly more robust

## Compaq

CONTINUED FROM PAGE 1

ing to a source briefed by Compaq. With the new Intel processor, the Compaq system will be capable of 1.4 million floating-point operations per second (MFLOPS), the source said.

Meanwhile, the IBM Model 70A-21, based on the Micro Channel Architecture, can attain 0.8 MFLOPS, said John Dunkle, vice-president of Work Group Technologies, workstation research group in Exeter, N.H. Dunkle said that a 33-MHz

Compaq machine would not be fully exploited until it included a 32-bit bus. With a 32-bit data path, he said, the machine could be used as a high-power computer-aided design and manufacturing workstation but will be primarily intended as a local-area network server. This strategy would allow Compaq to market the high-priced PC on a cost-per-seat basis, he said.

A Compaq spokesman said the 33-MHz machine was "not a subtopic up for discussion." An IBM source said the firm would "respond quickly" with its own high-speed machine based on the

33-MHz processor-based system when it becomes available.

Compaq denied reports by two sources that the machine would be upgradable to an Extended Industry Standard Architecture (EISA) bus when that bus becomes available. But Compaq has previously disclosed that it intends to introduce an EISA machine in the \$10,000 price range some time this year. Shortly after the EISA bus proposal was announced in September, Compaq's Director of Marketing, Mike Swarley said the EISA machines would mostly be used as LAN servers.

# Can you name...

The world's  
fastest growing  
company?

\$15 million  
\$282 million

1986 1987 1988

No other Fortune 500 company  
is growing as fast as Oracle.

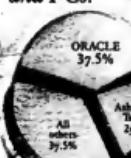
The only soft-  
ware product  
in history  
that has been  
a success on  
mainframes,



minicomputers,



and PCs?



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largest rela-  
tional DBMS  
company?

The number  
one major soft-  
ware company\*  
in customer  
satisfaction?

The world's  
fastest  
relational  
database  
management  
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large as its closest competitor.  
(Source: Donaldson, Lufkin &  
Jenrette Action Recommendations,  
July 18, 1988)

Oracle is the only software in  
the world that lets you connect  
all your computers and share  
data. (Source: DATA/TESTION  
survey of IBM and IBM-compatible  
mainframe sites, 8/15/88)

Product • Company	Performance
Old Tandem record	2.95 ips
ORACLE 1090 MVS	2.65 ips
All time record	
Old VAX record	2.0 ips
ORACLE	4.0 ips
VAX record	
Old UNIX record	2.2 ips
ORACLE UNIX	2.4 ips
UNIX record	
THE ORACLE DBMS holds the performance record in every major computer environment — IBM MVS, HLLC/MVS and UNIX. Audited benchmark results are available upon request.	

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ORACLE 1090 MVS	2.65 ips
All time record	
Old VAX record	2.0 ips
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## U.S. SEMINAR SCHEDULE

AR	Architectural Research	Feb 16/17
AS	Advanced Software	Feb 17/18
AZ	Arizona	Feb 21/22
CA	California	Feb 21/22
CA	California West	Feb 21/22
CA	Los Angeles	Feb 21/22
CA	San Francisco	Feb 21/22
CA	San Jose	Feb 21/22
CO	Colorado Springs	Feb 21/22
CO	Denver	Feb 21/22
CT	Albion	Feb 21/22
CT	Farmington	Feb 21/22
DC	Washington	Feb 21/22
FL	Orlando	Feb 21/22
FL	Tampa	Feb 21/22
GA	Atlanta	Feb 21/22
GA	Athens	Feb 21/22
IL	Chicago	Feb 21/22
IL	Springfield	Feb 21/22
IL	Urbana	Feb 21/22
IN	Wichita	Feb 21/22
IN	Indianapolis	Feb 21/22
IN	South Bend	Feb 21/22
IN	Terre Haute	Feb 21/22
IN	West Lafayette	Feb 21/22
LA	New Orleans	Feb 21/22
LA	Baton Rouge	Feb 21/22
LA	Hattiesburg	Feb 21/22
LA	Monroe	Feb 21/22
LA	Shreveport	Feb 21/22
MA	Boston	Feb 21/22
MA	Worcester	Feb 21/22
MD	Annapolis	Feb 21/22
MD	Bethesda	Feb 21/22
MD	Baltimore	Feb 21/22
MD	College Park	Feb 21/22
MD	Greenbelt	Feb 21/22
MD	Washington	Feb 21/22
MD	Waldorf	Feb 21/22
MD	Woodland Park	Feb 21/22
MD	Wright-Patterson AFB	Feb 21/22
MD	Beltsville	Feb 21/22
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# GM proposes demonstration of ISDN interoperability

BY ELISABETH HORWITT  
CNET STAFF

GAITHERSBURG, Md. — Hoping to speed the availability of Integrated Services Digital Network (ISDN) products for its own networking strategy, General Motors Corp. has proposed an ISDN interoperability event similar to the MAP/TOP Enterprise Networking Event '88 held last summer.

Through its subsidiary Electronic Data

Systems Corp. (EDS), GM proposed that the ISDN Users Forum have a joint vendor demonstration on how ISDN products can interoperate. The forum meeting here last week gave an official go-ahead to a working group to start lining up sponsors for the affair, tentatively scheduled for May or June 1991. The official purpose of the event is to prove that ISDN is available here and now.

"We're trying to develop a total networking and information technology

infrastructure for GM, and one of our plans is to utilize ISDN," said Michael Kamiński, manager of communications/ MAP at GM.

An ISDN interoperability event could "get technology, tests, products and [user] utilization there faster," Kamiński added. One critical element of ISDN, programming, Automation, Protocols/Technology and Office Protocol event, is a vendor commitment to provide commercial availability of the products they demonstrate within 18 months of the exhibit.

This stipulation may be a major obstacle to vendor participation, forum attendees said, given the fact that ISDN still has some significant functional gaps that forum members — not to mention stan-

dards groups such as CCITT — are only beginning to address.

"Vendors have told us that they would only be willing to commit that what they show will become a product if ISDN is frozen," said Jim Kendrick, a U.S. "avy spokesman who chairs a forum sub-group, the ISDN Users Workshop. When the Enterprise '88 was held, MAP 3.0 had been finalized, guaranteeing that specifications for the standard would not be changed during the next six years, Kendrick pointed out.

Two of the biggest ISDN gaps pointed during the forum were network management and common programming interfaces that would ensure portability of applications across various vendors' equipment.

"People expect ISDN to diagnose itself; maybe it will in 15 years," said Paul Kirwan, president of Paul F. Kirwan & Associates.

## Minor difficulties

At a meeting of the forum's Network Management Working Group, Patrick Krause, director of telecommunications at McDonald's Corp., reported a disquieting number of minor glitches in his company's ISDN network, which was installed by Illinois Bell on a trial basis in December 1986. Krause's group has dealt with an average of eight network malfunctions a day, 50% of which disappeared either before or during diagnostic testing, he said.

While conceding that his company is still on an ISDN learning curve, Krause asserted that the frequency of network glitches and the difficulty of locating their source had to do with the fact that an ISDN link requires many more devices and subconnections than, say, a classic modem-to-modem link. He called for the forum to push ISDN standards bodies to come up with network management specifications.

Several forum members brought up the lack of an application interface that would allow communications software to run across a variety of ISDN devices. ISDN software and equipment vendors claimed to provide some degree of portability now by supporting de facto industry standards such as IBM's NetBios, RS-232 and Hayes Microcomputer Products, Inc.'s AT command set. However, such protocols cannot take full advantage of ISDN capabilities such as 64K bit/sec. transmission rates or voice-related functionality, industry sources said. And support for these standards is spotty at best.

The ISDN Software Interface Group, a subcommittee within the forum, is said to be addressing this problem by developing a common set of commands for applications to access ISDN services. But since the forum does not have the authority to create standards, vendors' support of such protocols would be strictly optional.

Even if these areas remain undressed by 1991, vendors can still demonstrate some degree of ISDN interoperability at the upcoming event. More critical is the lack of some crucial nuts and bolts within the basic networking standard, according to Shukri Wakkid, forum chair and chief of the National Institute of Standards and Technology's Advanced Systems Division. The forum will be pushing standards committees such as CCITT to produce a version of ISDN that can be used in time for the event, he added.

Washington Bureau Chief Mitch Betts contributed to this report.

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# Opening more Windows

Word processor is one application Microsoft plans for this year

BY DOUGLAS BARNEY  
CNET

REEDMONT, Wash. — So far, Microsoft Corp. has only intermittently supported its Windows interface with its programs. But the company will spring into action with a rash of product releases beginning early this year and spanning the next two years.

Although Windows was announced in November 1983, after more than five years Microsoft still has only one major Windows application available with its Excel spreadsheet.

This will change sometime in the first half of this year when the firm that has so ardently preached the Windows way will actually announce the \$495 Windows Word. A word processor, Windows Word is in the late stages of beta testing. For loving on its heels will be Omega, a graphical database management system currently in beta testing that will be out well before year's end, Microsoft said.

Eventually, most key Microsoft applications will be moved to both Windows and the OS/2 Presentation Manager, Microsoft officials said. Windows, however,

has proven to be a difficult and complex environment to develop for, even for Microsoft. As a result, some of these applications may be a long time coming. "Microsoft is like a Japanese company. They have the longest view of things of anybody. They are always thinking five years out," said one user at a Microsoft beta-test site.

Despite its sluggish move to Windows, the firm plans a quicker ramp-up to the graphical OS/2/Presentation Manager, with a mid-year release of Excel/PM. This product will essentially be a port of today's Excel for Windows with a \$500 upgrade charge, said Pete Higgins, general manager of Microsoft's analysis business unit.

Also on the horizon are Windows and

Presentation Manager versions of all key Microsoft applications. The firm will develop an entirely new version of Microsoft Project for graphics environments and will port versions of Microsoft Works and Powerpoint, a Macintosh presentation package, to Windows and the Presentation Manager, said Mike Maples, vice-president of applications at Microsoft.

Windows Word duplicates all the features of the \$495 character-based version of Word. The product includes a new graphical OS/2/Presentation Manager, with a mid-year release of Excel/PM. This product will essentially be a port of today's Excel for Windows with a \$500 upgrade charge, said Pete Higgins, general manager of Microsoft's analysis business unit.

This product will also provide the setting for the debut of Microsoft's embedded macro language based on Quickbasic. This language, first discussed in October 1987, will eventually work across all graphical Microsoft applications and will also serve as the development language for Omega. As far back as October 1987, Microsoft dropped hints that Basic would be positioned as a database development language.

Omega, which some beta testers expect to be ready in the third quarter, will use this language. "It is like Dbase Windows," a beta tester said, referring to the fact that a programming language is central to the product. Ashton-Tate Corp. has the Dbase language. Microsoft has Basic. Omega will also serve as a front-end for SQL Server, a database engine developed by Ashton-Tate, Microsoft and Sybase, Inc.

Like Quickbasic, this macro/database development language generates pseudocode, or p-code, which essentially allows users to pseudocode programs as they edit. The system creates code that is "90% along the way to real native machine code," Microsoft explained.

#### Basically enhanced

Basic, however, has been enhanced for the graphical environments. "There are keywords and parameters that make it particularly good for Windows, dealing with things like fonts," the beta tester said.

There is more to Omega than just Basic. The product also contains so-called nonprocedural tools for reporting, querying and working with forms. This position the product against Lotus Development Corp.'s Lotus 1-2-3, which plans to provide a similar array of graphical database tools. The key difference, at least on the surface, is that Lotus will initially target the OS/2 Presentation Manager, while Microsoft will first squeeze its tools into the confines of Windows.

With the inclusion of Basic as a database development language, Omega will also be aimed squarely at Dbase, the DBMS from Microsoft SQL Server partner and rival Ashton-Tate.

Although a handful of programmers are already using Omega for applications development, the product is "still very flaky — perhaps really," said one East Coast beta tester.

Who should use Windows Word? "If you have a 6-MHz AT or less, I would recommend PC Word. If you have a 10-MHz 286 or more, I would recommend Windows Word," said Jeff Hallas, general manager of Microsoft's business unit. Hallas said Word for the Presentation Manager should ship about three to nine months after Windows Word.

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## M&D PIOS users get sold off

BY STANLEY GIBSON  
CW STAFF

DALLAS — In a move that left users of the PIOS manufacturing resource planning system puzzled about their future, McCormick & Dodge Corp. handed PIOS over to Arthur Andersen Consulting last week. With an installed base of 75 sites, PIOS is used by a number of large defense contractors.

The transition is part of an agreement between M&D and Andersen Consulting under which the two firms will jointly sell M&D's Millennium financial and human resources software and Andersen Consulting's Mac-Pac family of manufacturing software. Mac-Pac has roughly 600 installations, according to Andersen Consulting.

As part of the agreement, the two firms are integrating Mac-Pac with M&D's Millennium software. Although Andersen Consulting promised three years of maintenance for PIOS — which stands for Production and Inventory Optimization System — the firm said no paid commitments will have to be paid for by the user base. An Andersen Consulting official said the firm would not sell PIOS to new accounts.

M&D employees who had worked on PIOS development and marketing will be offered positions with Andersen Consulting under the pact. Andersen Consulting said it has no plans to acquire M&D, now part of The Dus & Bradstreet Corp.

PIOS never caught on. M&D acquired the rights to the PIOS package four years ago from Rath & Strong, Inc., a Lexington, Mass.-based consulting firm, in an effort to diversify its product line. Although M&D sought to sell the package to the commercial market, it never caught on there.

"I'm disappointed. I think it's a good product that's going to go down the tubes for all the wrong reasons," said PIOS user Bob Hersey, director of Information Systems Services at Combustion Engineering in Windsor, Conn.

Hersey said his firm has no intention of moving to Mac-Pac. If Andersen Consulting withdraws support for the package later on, users should continue with development on their own, he said.

Malcolm McNeil, director of information services at Santa Barbara Research, a division of Hughes Aircraft Co. in Goleta, Calif., said he cannot change from PIOS soon.

"There are a lot of users who have been trained, and a lot of money has been spent," he said. McNeil's firm has been migrating to PIOS for the past several years.

PIOS now runs with IBM's

IMS and Cimnet Software, Inc.'s IDMS databases but not with IBM's DB2. Paul Bellwood, at Northrop Corp. in Los Angeles, said he is interested in a DB2 version, which he said he understands is under development. However, an Andersen Consulting

official said there are no plans to offer a DB2 version of PIOS.

Several users said that M&D did not comprehend the selling cycle for manufacturing software, which is typically several years, in contrast to much briefer periods for financial software.

Rumors of the sale of PIOS to Andersen Consulting began after the PIOS users group meeting in December. The group meets again Jan. 30 in Dallas. Andersen Consulting has been invited to address the group, said Bellwood, who is chairman of the users group.

Although Andersen Consulting reportedly paid M&D for PIOS and its associated employ-

ees, the amount was not disclosed. M&D bought PIOS because many of its customers were manufacturing companies that wanted to sell a full range of products. PIOS, however, did not lend itself to being integrated with M&D financials, Bellwood said. M&D had recently lost money from its PIOS group, one source indicated.

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# Unisys Micro A desktop tied to 4GL

Current lack of applications minimizes threat to AS/400 market share

BY ROBERT MORAN  
CP STAFF

NEW YORK — Unisys Corp. last week announced the Micro A, a desktop extension of its A series mainframe architecture

that the company hopes will capture as much as 40% of its sales from new accounts and drive prospective Application System/400 users away from IBM.

However, observers said that the system could till new soil for

Unisys that could later nurture sales of larger processors but that the application-deficient system will cause little problem for the AS/400.

With the Micro A, available today, the company has con-

tinued the A series mainframe on a single chip, called the Single Chip A-Series Mainframe Processor, or Scamp. The chip, along with 12MB of memory and I/O logic, has been placed on an expansion board that slides into a specially equipped Unisys PW2 Series 800 personal workstation. The Micro A runs the series MCP/AS operating system, which adds \$5,000 to the

hardware cost of \$20,365.

In addition, the Micro A contains an Intel Corp. 80386 processor and the Microsoft Corp. OS/2 operating system, which serve as the I/O processor and maintenance bus. It also contains a board for a small computer systems interface (SCSI) host adapter.

According to Jeffrey Beeler, an analyst at Datapace, Inc., in San Jose, Calif., both OS/2 and the SCSI interface are critical for integrating into accounts — for example, in the banking industry — that dominate interoperable work platforms such as the IBM Personal System/2.

Although the company referred to the Micro A as a desktop mainframe, Neil Waddington, vice-president of corporate marketing and services, said that "the Micro A will not be used on the desk top because it can support up to 16 users," or three programmers developing applications with Linc, the company's fourth-generation language (4GL).

According to Waddington, approximately 65% of the systems will be sold with Linc, which will bring the total system cost to approximately \$50,000. Mapper, the company's other 4GL, will reportedly be available in the second half of this year.

Eric Thomas, director of information systems and services at Lincoln Hospital in Phoenix and an A10 Model F user, called the price of the Micro A with Linc phenomenal because it will allow Linc programmers "to develop their little hearts out without impacting mainframe users." But Thomas said that he will not buy a Micro A until application software for nursing stations becomes available.

The paucy of applications, however, could militate against Unisys' attempt to pit the Micro A as a weapon against IBM's forthcoming AS/400, said Peter Burstein, an analyst at International Data Corp. in Framingham, Mass. The AS/400's applications number in the thousands.

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As Bonnie Kos, McDonald's VP for facilities and systems, put it, "We had to adapt a single approach to all our communications that not only got rid of all our network spaghetti, but allowed us easy connectivity and communications between computers that use different protocols."

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# Japan chip plans include 64-bit RISC

IDG NEWS SERVICE

TOKYO — Two of Japan's giant electronics firms announced this week new microprocessor developments.

NEC Corp. announced the development of a general-purpose 32-bit microprocessor capable of up to 15 million instructions per second (MIPS) and features an internal clock speed of 45 MHz. Matsushita Electric Industrial Co. said it has developed a 64-bit reduced instruction set computing (RISC) "superchip" for use in parallel processing.

NEC researchers employed a "silicidate-gate technique," which decreases electrical resistance in the circuit, to integrate 385,000 micro devices on an 8.34mm by 8.28mm chip, according to a company spokesman. Sample shipments of the low-end version running at 33 MHz and processing 11 MIPS are expected to be available this fall.

Matsushita said it will release specifications of its new chip in February at the International Solid-State Circuit Conference '89 in the U.S. While Digital Equipment Corp. and General Electric Co. are also expected to announce similar chips then, the Japanese consumer electronics firm is looking to get a jump on superchip competition by starting commercial production of 32-bit RISC chips now.

## Friday 13th worm gets DEC vaccine

BY MICHAEL ALEXANDER  
CW STAFF

While several companies in the U.S. and abroad were reportedly struggling to quash the newest strain of Friday the 13th virus that hit computers a couple of weeks ago, Digital Equipment Corp. engineers were chasing down a worm.

Unlike a virus, which must attach itself to a program to execute, a worm can replicate itself, often to the point of overloading a computer's memory until it can no longer function.

A company spokesman said that a worm was put into DEC computer systems the evening of Friday, January 13. "The systems managed to stop the worm and clean it as it came in," said Nikki Richardson, a company spokeswoman.

While the worm did not damage any of its systems, DEC engineers uncoupled some connections between systems while they concocted a vaccine to stamp out the worm. The vaccine, which was designed to follow the worm's trail, cleared the affected systems of the worm by Monday morning, Richardson said.

DEC officials refused to speculate on the origin of the worm or to reveal how many systems were affected or where they were located. "It's an internal investigation, and it will be finished when it is completed," Richardson said.

# Korea sees chip sales doubling

IDG NEWS SERVICE

SEOUL, Korea — The Koreans are finally coming.

With the U.S. semiconductor industry still reeling from Japanese competition, the major South Korean semiconductor makers are setting aggressive export targets this year.

Samsung Electronics Co., Goldstar Semiconductor Ltd., Hyundai Electronics and Daewoo Telecom Co. have set an ambitious semiconductor sales goal of approximately \$2.65 billion for 1989, almost double the size of last year's sales of \$1.4 billion.

A local industry analyst said that thanks to the expanding global semiconductor market, particularly in Southeast Asia, all four vendors have increased their production capacity of 1M-byte dynamic random-access memory (DRAM) chips since last year.

With sales of almost \$1 billion in 1988, Samsung has set a 1989 sales goal of \$1.64 billion. The firm plans to sharply increase its 1M-byte DRAM manufacturing capacity to 5.5 million units per month from the current 1.5 million with the completion of its 1M-byte DRAM production line early this year. It also plans to increase efforts to make 1M-byte static

random-access memory chips.

Goldstar said it expects to ship \$534 million worth of memory chip and application-specific integrated-circuit products this year, almost triple its total 1988 export sales.

Chip sales for Hyundai Electronics are expected to reach twice that of its 1988 chip sales of \$223.9 million. The company will rely on the production of 256K-byte DRAMs, which is expected to start mass-producing 1M-byte DRAM chips in the second half of the year.

Daewoo Telecom shipped \$5.3 million worth of semiconductor products last year and plans this year to sharply increase shipments to \$29.1 million, with a target of \$10.9 million from overseas sales.

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## EDITORIAL

## Paying the piper

**W**HAT ONE HAND gives, another can easily take away. In the wake of the U.S. Supreme Court's affirmation of states' rights to tax interstate communications traffic, businesses stand to lose a substantial amount of the interstate rate savings that divestiture of the Bell System has produced.

So, what can you do about it? Swallow hard and get ready to pay up.

About a dozen states either have or are considering tax measures to raise revenue from communications links. With reports popping up continually about another state facing a budget deficit, this is going to be an easy one for governors and state legislators to enact.

Relocating headquarters and branch offices is not a realistic alternative for most businesses. The growing trend among the 50 states to find "revenue enhancement" alternatives to income-tax hikes makes any relocation plan a risky gamble that could prove fruitless next week or next year when the taxman surfaces in the new locale.

For those businesses that are where they are because they *have* to be there, it's time to start thinking about tax-rebate strategies. If two states tax the same communication, one or both is going to have to come up with a whole or partial rebate, to eliminate double taxation.

That's going to require paperwork on your part, but more important, it's going to call for up-to-date communications hardware and software capable of providing businesses with information to the most minute detail for both voice and data traffic. Finally, there is as much reason for applying information systems tools to voice traffic as there already is for data traffic; we may not like it, but the tax needs of the 50 states may finally bring the justification for full integration of the voice and data communications organizations of today's businesses.

## Going down?

**P**ITY the poor microcomputer vendors. When memory chip prices went through the roof last year, they reluctantly raised system prices to compensate. "We have no choice," they said. "These prices are just eating us alive."

Not anymore. Chip prices are headed down — way down, if some predictions are to be believed. Already, volume prices are less than half of what they were seven months ago. But have PC prices come down yet? Well . . .

Few will argue with the rights of PC makers to earn a profit. But when vendors cloak their actions in the guise of market forces, they owe their customers an explanation when those forces change. At this point, all they have said about reducing prices is that they'll think about it.

If this explanation strikes you as inadequate, ask for a better one. If one is not forthcoming, consider letting your wallet do the talking.



## LETTERS TO THE EDITOR

## Cloning the Macintosh: A fruitless task?

I recently read Douglas Barney's editorial on the lack of a Macintosh clone (CW, Dec. 19) and thought you should know that there is one available today.

A low-cost Mac clone requires an Atari 1040ST, Meg 2 or Mega 4 computer with a monochrome monitor. Also required is a ROM cartridge and software called Spacetime 128 (list price \$179.95) from Gadgets by Small and 128K-byte Mac ROMs (available for about \$150). A hard disk is optional. Also, a hardware/software package enables the Atari to read the Macintosh floppy disks.

This setup will not only run the color software written for the Macintosh II but all software that runs on the Macs with 128K-byte ROMs, also. And since the Atari computers use the Motorola 68000 CPU running at 8 MHz, the Mac software will run just as fast. Additionally, the Atari monitor is larger and has a slightly higher resolution than the Mac monitor.

Based on an Atari 1040ST (at least 1 MB of RAM is required), one should be able to assemble a Macintosh-compatible system at a cost below \$2,000.

G. McKendre Haynes  
Oxonos Nuclear Station  
Computer Services  
Seneca, S.C.

I found Douglas Barney's editorial on cloning the Mac to be amusing, since it tells only part of the story.

While it is true that a Mac clone would be a welcomed addition, it is not true that buying a PC clone will save you money.

First of all, the Mac is not slow. True, the program startup is slower than a PC because of

the things the program must do at the beginning; however, just about everything else is faster.

It is costing you tens of thousands of dollars a year more in lost time to use a PC instead of a Mac. Think about that the next time you are congratulating yourself for sticking with a PC.

And now that you've been trying to get Presto!Station Macintosh to work (to bring yourselves up to where Apple was in 1985), rumors have it that Apple is going to announce new computers in 1989. This will mean that for a few thousand dollars more, you can drive your Mac Corvette or your PC Hyundai. The choice is yours, but which users do you think will move ahead in the company?

Ron Howe  
Sr. Database Designer  
Computer Task Group  
Raleigh, N.C.

In response to Douglas Barney's article, I suggest he take a look at the Amiga 2000 for a system with the power of the Apple Macintosh and the value of an IBM PC AT clone.

While it has a mouse-driven windowing user interface similar to the Mac, the Amiga comes with a full-function keyboard for those who would rather not depend on a mouse to get their work done. And since every Amiga is equipped with graphics coprocessors to off-load the screen-drawing function from the CPU, the Amiga is not as sluggish as the low-end Macs.

The Amiga not only offers this performance, it also offers software and hardware compatibility of an AT clone, so you can keep your PC software when migrating to more versatile and powerful

Amiga applications.

Finally, Amiga offers multi-tasking with hundreds of application programs that work well under its environment. Cracking up your word processor while working on a spreadsheet is as simple as point and shoot.

Kevin M. Rake  
Crestock Park, Mich.

Douglas Barney calls for the wine clime makers to dig in there and clone the Macintosh.

There are several flaws in his theme. The most obvious one is right there in the column: "as long as they don't steal the BIOS code." The most important thing about the Mac is the equivalent of the BIOS code, the copy-right protected ROM code that provides the unity that makes the Mac so easy to use.

The Macintosh was created by people who were dedicated to the desktop personal computer. They developed a machine that created desktop layout, it has taken years for it to creep into the IBM world, where it only works well on high-end machines with high-end displays. IBM still probably does not believe in microcomputers as real machines.

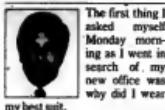
Sometimes people really do make a unique product instead of something differentiated only by advertising, and market forces drive the price up.

Mike Firth  
Dallas, Texas

Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Lederer, Editor, Computerworld, P.O. Box 9171, 375 Constitution Road, Framingham, Mass. 01701.

# Has anybody seen a few desks floating around?

MICHAEL COHN



The first thing I asked myself Monday morning as I went in search of my new office was why did I wear my best suit.

Just a week before, I had been stunned when the memo came across my desk. I was expecting to see another "We've postponed the recently postponed relocation of the Computer Center to the new building. We'll keep you posted as to when we postpone it again" message.

But instead, the three-sentence memo came in all by surprise: "The Computer Center move will occur this weekend. All programming staff should have their terminals, furniture and moving boxes labeled and secured by 5 p.m. Friday. Please contact the operations manager for additional information."

I don't handle Monday mornings all that well, anyway. But when I came in and found the as-

**A**T 4 P.M., there was still no news from the furniture front, and everyone had resorted to making little piles of books and papers on the floor.

Sortments of boxes, terminals and cables sprawled on the floor of my new office, I immediately wondered whether it would be worth it to go home and change clothes or maybe just go home.

A few doors down, I found the office of my programmers. Ron was already acclimating to his surroundings. He was preoccupied with breaking down his moving boxes and trying to stack them flat in the corner. Regrettably, he had not completely emptied them first. Ron seemed a bit worried.

"I knew this would happen," he moaned. "They lost two of my boxes. And look, no furniture — no desks, no chairs, no credenzas. Where am I supposed to put my stuff? And who knows when they'll get around to getting the system up?"

I noticed that Ron's terminal was turned on, sitting right in the middle of the floor. The image of Ron lying on his stomach and banging on his keyboard

didn't surprise me. I figured I'd better get back to my office and call operations before things got out of hand.

By the time I unpacked my phone, discovered a working phone jack and got through to the operations manager, it was nearly 11:30 a.m.

"What's going on here?" I asked. "It's almost lunchtime. We have no desks. And the system's still down. I've got to run a cycle tonight. What's the story?"

"Look, I'm doing everything I can," OK?" he answered. "I've got people complaining because I lost some of the desks. Then they're complaining because I lost some of the production time. If everyone would be a little patient, I could straighten the whole thing out."

"You lost production time?" Things were getting worse by the minute. "How much did you lose?"

"Heck, probably less than 1%, just the first 18 or 20 feet from every reel. But I'll take care of it. It's not like we didn't back everything up to cartridges. Locked them all up in a couple of desk drawers."

"Are those the desks you've lost or the desks you've found?" I asked, only half joking.

"Well, it really doesn't make a difference, because no one knows where the keys are."

## Sitting on the floor

At 4 p.m., there was still no news from the furniture front, and everyone had resorted to making little piles of books and papers on the floor. The system had come up long enough for us to slip in a few reporting jobs. I called the operations manager again to check that the output was printing somewhere. "The printers? Don't worry, they're running fine. We left them in the old building for now."

"Great," I said, "but how do I get the printout?"

"I already thought of that. We send a truck out there three times a day. In fact, the third one left just 20 minutes ago to look for the first two trucks."

"I'm pretty fed up." "Look, I don't mean to be negative. I know you have a tough job. But didn't you have this thing scheduled for weeks? Didn't we have walk-throughs? Recovery tests? File backups? Would it be too much to ask to get a desk or two over here as soon as you find all your tapes, printers and disk packs?"

"Disk packs? No one said anything about moving any disk packs."

I heard a loud crash in the background. The phone suddenly went dead. It looked like it was going to be a long night.

# How to succeed as a manager

DENNIS NOONAN

It was scary when I first got promoted to management. I had read the *Peter Principle* and was fearful that I would be incompetent as a manager.

When I admitted my doubts to a neighbor, Joe, he told me not to worry. "Trust me," he said. "You can't be any worse than most of the so-called managers out there. You'll be fine. Just don't let them see you sweat." Joe was a management consultant, so he always spoke with authority. It was easy to believe him because he always told you what you wanted to hear.

Curiously, my strategy of "creative incompetence" had failed. Despite my squishy short-sleeved sport coat and randomly matching socks, here I was, a project manager with seven project members to lead down the path toward excellence. Somehow the system had failed. I should have been passed over. Joe said that my strategy probably failed to take into account how the others were dressed.

## Incompetency principle

The *Peter Principle* was a crucial book for me. The author pointed out that competent people keep getting promoted until they reach a job that exceeds their ability. In a bureaucracy, incompetence is viewed as a barrier to further promotion, so there are grounds for termination.

A silent web forms between the executive and former co-workers. He thinks they take advantage of his friendliness. Then think he is changed, distant, carried away with his own importance. Eventually, the term "incompetent" is tossed around. It is an unpleasant turn of events — the fate I sought to avoid by evading promotion.

## Faking it

I was successful for several years. The *Peter Principle* offered advice to those who felt they had achieved the last level of competence. The prescription suggested that the person who did not want to be promoted should "fake it" until the next level. You do things that will make your manager question your competence, while your peers and associates still think you are effective.

It seemed like a foolproof strategy to me. But now I had to face up to the fact that my strategy had failed and I would have to make the best of it.

My new boss, the systems manager, had been recently promoted himself. He was the direct type — direct to a fault. He started out telling me that I was not his first choice for the job but



JOHN LOVINS

my seniority had been an unavoidable factor in his decision. I was sure that this was just a pep talk to keep me on my toes in my new position of authority.

The systems manager told me that I had inherited some "problem people." My first problem was to try to figure out which ones they were. They all seemed to understand what they were supposed to do, and they kept on doing it greater work. Oh, right, there were a couple of weirdos on that team, but I figured, heck, this is systems, not sales.

My incompetence as a manager really came to the surface when I discovered that each of these people knew more about programming than I did. In fact, the only contribution I could make was to hammer away at the project milestones and relate the goals and deliverables in simple terms. All I had to do was point them in the right direction. Soon I had gotten into the habit of leaving them alone unless someone wanted to chat or show me what he had been up to lately. These folks were like kids, so proud of themselves.

## Helpful feedback

They were getting results, too. The users were always calling and telling me what a great job we were doing. I passed these remarks on to the systems manager, but he "wasn't interested in the opinions of nontechnical people." He was much more concerned with the fact that one of my status memos had three typos, and how did that make us look?

Continued on page 22

Cohn is a quality assurance representative based in Atlanta.

# Manager

CONTINUED FROM PAGE 21

My management consultant friend had been dead wrong. I was not doing fine. As a manager, I was failing. Sure, good things were happening, but I wasn't making them happen. It was them, not me. When the vice-president complimented me in writing, my systems manager hastened to point out that the team had done all the excellent work, and I should not acquire a big head.

On my next review, the successes of my team were attributed to having an exceptionally competent staff. My accomplishments as a manager were deemed "adequate." Most of the review was de-

voted to a discussion of the systems manager's views on standard methodologies and the leadership role of MIS in the strategic planning of the company. It was clear that I had failed to measure up to his standards of excellence.

He thought I should become more technical, that my programs wouldn't be able to fool me, and that I should become more demanding on my team members and be more influential over my peers. He also noted that I had to be prodded to turn in monthly status reports on time.

Moreover, I had shown what he called disdain for traditional systems development methodologies. Although the systems seemed to work and the users were happy, many of my team members were

remiss in ensuring that the documentation group was provided with the latest commented code. My systems manager was not amused by the sign on one programmer's door that read, "Documentation is for sissies."

## A pushover

In time, I became convinced that I had failed to grasp the essence of managing people in a systems development environment. I was a true pushover. And although the results seemed valuable to me, my manager was clearly unimpressed. Eventually, our relationship deteriorated to the point at which I had to look for another job. I got a lucky offer from a big high-tech company as a project manager.

I decided not to repeat the mistakes of the past. This time, my neighbor Joe advised me on my wardrobe. I got a couple of dark suits, a power tie and expensive shoes. He made me buy all-white shirts.

I became the first project manager to turn in a monthly status report. Sure, I inherited a few people problems, but I straightened them out fast. The programmers took some technical courses, and there was a lot of turnover because of my high standards.

My boss thought I was doing fine, but the users were unreasonable. They just didn't seem to realize the importance of good, readable documentation and flowcharts. They kept calling to ask me why their systems weren't done yet. But I figured, heck, you can't satisfy everybody.

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1 Manufacturing/Processing/Refining/Ag.  
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1 Systems & S/W Services, including Software/Services  
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1 Vendor/Other

5 TITLE/FUNCTION (Code and) *(Please specify)*

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11 Vice President, Pres. Mgr.  
12 Dir. Mgr. Sales, S/W/DP Services  
13 Dir. Mgr. Sales, Analyst of Systems  
20 Dir. Mgr. Sales, Sales Manager  
22 Dir. Mgr. Sales, Marketing Analyst  
23 Dir. Mgr. Sales, Marketing Manager  
24 Dir. Mgr. Mktg. Mktm. Devt. Mgr.  
25 Dir. Mgr. Mktg. Mktm. Devt. Sales Mgr.  
11 Product Manager/Project Manager Mgr.  
12 Treasurer/Controller, Financial Officer  
13 Financial Manager, R&D Tech. Mgr.  
14 Marketing Manager, Sales Manager  
15 Sales Manager, Sales Representative  
16 Consulting Mgr.  
17 Executive, Manager, Admin. Mgr.  
18 Educators, Journalists, Librarians, Students  
19 Others

6 COMPUTER INVESTMENT (Code and) *(Please specify)*  
10 Computer installations (not in your business)  
11 Computer installations with which you are personally involved other than as vendor or end user  
A. Manufacturing/Suppliers  
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# SYSTEMS & SOFTWARE

## SOFT TALK

John Barnes

### Let's jail the virus makers



In the last few months, the idea of computer viruses has exploded into the general media and thus into the mind of the man on the street.

Much to my surprise — maybe it's because word processors are now universal in journalism and so journalists take a keen interest in the topic — reporting on viruses has been pretty good.

There is an exception, though. The intent is to portray the virus maker as a genius — usually a twisted, eccentric or egotistical genius — but basically a genius. If we can re-educate the public on this point, we'll have done a lot to stop viruses.

The computer virus maker is supposed to be clever, a brilliant fellow gone wrong. Tom Swift driven by the cruel, misundertstanding world to become Victor Frankenstein. In fact, it's well-known within the industry that most such people are bozos with an excessive need for attention they cannot attract through talent alone.

This hurts us all. To begin with, it tends to make high-level policy people who are not computer-literate treat viruses

Continued on page 33

## Expert systems: Quiet heroes

Away from limelight, artificial intelligence is effective in routine tasks

### ON SITE

BY AMY CORTESE  
CW STAFF

The term "expert systems" is increasingly misleading. Rather than replace an expert, more and more of these systems are developed to help all kinds of employees by handling routine chores.

At MCI Communications Corp., expert systems are used to "make everyday systems easier to use," according to Dan DeSalvo, a manager in the Ad-

vanced Technologies Group.

One expert application was designed to assist the many managers and sales people within MCI who need an array of constantly changing customer and product information.

The Commercial Prospects Advisor was developed using Artificial Intelligence Corp.'s Knowledge Base Management System to simplify the task of querying a database. The result is that users at a terminal do not need to know whether the information lies in a database built

with Adabas or DB2.

The result has been to disseminate information more broadly, according to DeSalvo, a obstacle to users has been removed. Ultimately, the system will make more than one million records easily accessible to more than 1,000 users.

Furthermore, the Commercial Prospects Advisor took only five months to build and will be easier to develop and maintain than a conventional application. DeSalvo said. Emphasizing the application's ease of use, DeSalvo

points out that the only user manual is a 3- by 5 card detailing the logon procedure.

### Down to earth

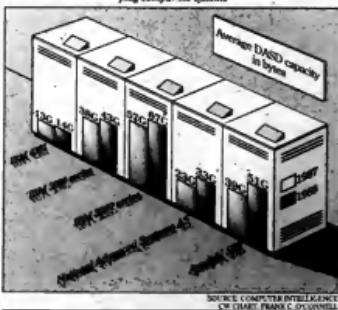
Tom Schwartz, president of AI market research firm The Schwartz Associates in Mountainview, Calif., concurs that artificial intelligence technology brings a down-to-earth benefit, boosting productivity and lowering costs.

Because AI allows programmers to deal with problems at a high level of abstraction, it creates systems that are easier to develop and maintain than a program written in a procedural language such as Cobol. The rules-based design of expert systems

Continued on page 37

### Data View

DASD growth across the board  
Direct-access storage device capacity has increased the most on plug-computers/Mic systems



## DEC offers automatic watchdog

BY JAMES DALY  
CW STAFF

MAYNARD, Mass. — Most systems managers would probably agree that if finances allowed, they would post a 24-hour guard at every computer site. Digital Equipment Corp. may have come up with the next best thing.

The recently introduced Environmental Monitoring System (EMS) is a microprocessor-based electronic watchdog that uses up to 112 external sensors to provide warnings against data-threatening abnormalities

such as fire, flooding, extreme temperatures, excess humidity or security breaches. The system can be used in place of security personnel to cut operations expenses, according to Sara Williams, DEC's environmental product manager.

The EMS surveillance system responds with a visual display and an audio announcement on its connecting terminal whenever real-time samplings of

Continued on page 37

### Inside

• University of Illinois data-builds body image. Page 29.

• DEC workstation rollouts add new dimensions to hospitals' radiology applications. Page 29.

• Cisco plans next Directions executive meeting for Miami. Page 29.

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# COMPUTER WORLD

## MICRO BITS

### PC options aplenty at show

CW STAFF

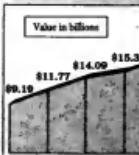
• A hardware and software products and specifications show to demonstrate business presentations in schools will be making PC users with per graphics options, expansion cards and enhanced security features. The show, which has signed up

#### Data View

### Program training

CW STAFF

For a bunch of personal computer users in a room and eventually they will duplicate every application ever written for themselves



same time, they will create over and their departments. At the former computer manager down the hall.

Thanks to the proliferation of personal computers and a rise in computer literacy, many end users that are now creating applications, databases, spreadsheets and other programs. The appli-

#### NEWS

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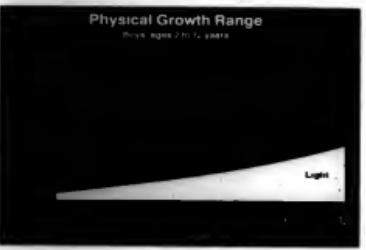
Historical Control Chart



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# Project Da Vinci: A medical database for modern man

## ON SITE

BY JEAN S. BOZMAN  
CHICAGO STAFF

CHICAGO — Leonardo da Vinci, the artist and inventor of the Italian Renaissance, was thought by some contemporaries to be diabolically morbid. He spent a good deal of time not drawing from life but instead sketching cadavers.

His painstaking research of the dead, however, has brought tangible benefit to the living — Leonardo's work formed the basis for modern medical illustration.

And recently, da Vinci the genius has inspired Project da Vinci, a \$2 million program at the University of Illinois at Chicago (UIC) that is building a three-dimensional database containing anatomical information on the human body.

The data, which is stored on a Control Data Corp. Cyber 930 mainframe, will contribute to two goals: the synthesis of a "Standard Man," or composite

of many different body types, and the effort to identify missing children by predicting how their bodies and facial features age.

"There's data specific to age,



Standard Man database

race and sex, so that we can sum up a picture of a human being," says Dr. Lewis Sadler, a medical illustrator who heads the university's Department of Biocommunications.

The data accumulating in the Cyber 930 is based on measure-

ments of dozens of cadavers donated to medical research. As many as 100 cadavers may eventually be used to create the database.

The work parallels similar efforts under way at the University of Colorado and the University of Washington. According to UIC officials, the project is funded by such vendors as CDC, DuPont Co. and Procter and Gamble Co.

Although it is not expected to be completed for several years, the Standard Man database will allow users to sum up descriptions of human beings for medical and commercial applications.

Sadler said he anticipates practical applications in the areas of sports and rehabilitative medicine, clothing and shoe design, medical instruction and the engineering of military instrumentation.

The centuries-old art of medical illustration has not yielded to computerization until recently, according to Sadler.

"For hundreds of years, people



PHOTO BY MICHAEL MURRAY FOR COMPUTERWORLD

have talked about humans as belonging to a single species," he explained. "But researchers ended up specializing in smaller and smaller areas of study, and nobody was looking at the whole picture."

**The old-fashioned way**  
Until now, medical artists such as Sadler and his 12 colleagues on the UIC faculty were forced to render all illustrations by hand.

For example, university illustrators have aided police in "aging" pictures of missing children in the hope of recovering them from noncustodial parents.

The aging technique, which

relies on the fact that facial dimensions change fairly predictably over time, has helped recover 24 of 81 children during the last three years.

However, it is extremely painstaking work. "It used to take 20 hours to 'age' one child," Sadler reported. "Now, we can do it in minutes."

Hand-drawn artwork suffers from some inaccuracy because of human error. "We feel we were very accurate if we were 87% accurate," Sadler said.

Not only does the use of computers increase accuracy, but data gleaned from cadavers is also far more precise than hu-

*Continued on page 25*

## DEC's desktop helps automate radiology labs

BY AMY CORTESE  
CHICAGO STAFF

Last week's torrent of desktop hardware and software unleashed by Digital Equipment Corp. (left) may seem like their heads. But as users begin to make sense of the announcement, some may find the products and capabilities that were

announced add new functionality to systems already in use.

The field of radiology is one that will benefit from DEC's new products. DEC has long offered applications software to radiology departments in hospitals, but last week's announcement supplies the final pieces that will allow text and medical images to be integrated for the

first time, according to DEC officials.

Specifically, the pieces are Decwindows software, the Vax-image Application Services software tools and the desktop workstations in conjunction with Decrad, DEC's radiology software. Decwindows will be included in Release 5.1 of VMS, due out next month. However, a team of early support customers are already at work building systems.

**A long way to go**  
Dr. Gilbert Jost, Chief of Diagnostic Radiology at The Mailman-Kinckow Institute of Radiology in St. Louis, said that, using the new DEC products and Decrad, his department has been able to integrate text and image in test demonstrations. Currently, images are mostly stored on film in the radiology department. Although he views the ability to integrate image on the same platform with text as an important step forward, Jost acknowledged there is still a long way to go.

The DEC products reportedly will be integrated with other DEC or non-DEC components to form a picture archiving and communications system that stores, displays and distributes text- and image-based patient information. For instance, a radiology image could be displayed in one window while a text-based record containing patient information could be displayed in another.

An underlying part of this technology is software that converts images from a radiology-specific machine such as a CAT scanner to DEC Document Interchange Format (DIF) protocols. By reducing text and image data to a common data type, the image-based data can be transmitted from the radiology machines to an Ethernet network of general-purpose computers.

The conversion software is the result of a joint effort of DEC and Siemens Medical Systems, Inc., a subsidiary of Siemens AG.

Although general-purpose hardware will not replace radiology-specific machines, the common data format and DEC's Compound Document Architecture allow the lower cost workstations to do some of the work that used to require special-purpose hardware.

The Vaxstation 3100, DEC's new entry-level workstation, and the Vaxstation 3520 and 3540 workstations will be the most cost-effective models for a radiology system, according to the company.

The Decrad software — which runs solely on VMS operating systems — is priced from \$21,000 to \$100,000, depending on the hardware on which it runs. Although situations will vary, the company estimates that a sophisticated radiology department could be automated with a DEC system, including workstations and software, for about \$500,000.

## SOFT NOTES Cincom plans Directions conference

Cincom Systems, Inc. will hold its next Directions executive conference from Feb. 21-24 at the Hotel Inter-Continental in Miami. The conference is titled, "Directions in Manufacturing, Key to World Class Performance in 1990." For additional information, contact Cincom at 800-543-3010.

Ardent Computer Corp. said it added four computational fluid dynamics software packages to its list of graphics supercomputers.

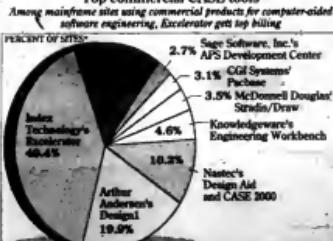
The programs include the following: Onyxplot and Uixer, both from Analytical Methods, Inc. in Seattle; Phoenix from Chan Ltd. in London; and Fidap, a fluid solver from Fluid Dynamics International, Inc., in Evanston, Ill.

**Business Systems** — Resources in Waltham, Mass., said it will adapt its Advance software to IBM's Systems Application Architecture (SAA) guidelines. Advance supports the information needs of college and university alumni and developers.

*Continued on page 35*

## Data View

Top commercial CASE tools



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**Barnes**

FROM PAGE 25

as a technical problem rather than the social one they are. If you think you're facing malevolent geniuses, you're going to divert a lot of intelligent resources to securing your systems against them. Further, because genius is scarce and valuable, you'll aim for leniency toward the ones who get caught, hoping to turn their "talents" to good purpose.

**Steps to take**

The truth is that there are adequate technical remedies already in existence for viruses. "Safe computing" is already here, and it's cheap. It has to do with physical security — not downloading anything from the outside into a system without knowing where it's from. When there's a doubt, it must be subjected to a program that can find viruses.

What hasn't been here is the willingness to jail the offender. The punishment must be in proportion to the crime. Damage in the millions of dollars ought to warrant time behind bars.

There are a lot of people in the world who are fairly smart but not smart enough to support their own ego. They have grandiose visions, but while they talk well, they deliver little. After a while, these dreamers haven't gotten nearly as far as they think they should have. So they begin to feel it's a nasty, ugly world, one that knocks things apart for no reason, and naturally enough, they develop an ugly desire for random destruction.

If they've been told that their unpleasant activities are works of genius, that lets them reclaim some of their lost ego inflation: "Poor, misunderstood genius me, I'll show them how clever I am." What we need to get across to the public is that viruses are the products of second-rate minds with first-magnitude grudges.

If you find yourself interviewed on the subject, especially after an incident at your facility, let me suggest an example that I've found useful in explaining things to computer-illiterate and computer-phobic friends: Suppose you have a robot in your kitchen that does the cooking. The nice cooks in directions you write on file cards, one instruction to a card, such as "Pre-heat oven to 375 degrees" or "Add garlic and onion and simmer for another half hour." A benign virus is the equivalent of a card that says, "Make a copy of this card and put it in the deck of another recipe."

If it's less benign, it might be three cards, saying, "Make a copy of this and the next two cards, changing any name of a day to the next day, and put

them in the deck of another recipe. If this is Tuesday, empty the catbox into the food. If you have emptied the catbox into the food, pull out this and the previous two cards and burn them." If you want to devise other examples of recipe viruses, you'll find it's easy — because you hardly have to know a thing about programming.

The person who wrote the

virus does not need to know how to cook. He doesn't need to know anything much about the kitchen or even about the robot. He is, in short, not much more than an annoying virus.

By controlling who gets into your kitchen, you can control your food. Who are the really clever people? The ones who can write programs that catch viruses.

I've seen several such programs

in action and looked at their operation in detail, and I'm impressed.

Imagine — to return to the example — a set of file cards that tell the robot how to search a recipe for viruses, find them and discard them. You'll quickly see how much more intellectually demanding it is.

If we can get the idea out to the public that a virus maker is

not a genius, not a twisted lonely soul and much more a nuisance than a menace, we'll have robbed him of his chance to see himself as a hero and his power to frighten upper management into expensive, unnecessary crash programs.

Barnes is the Pacific Northwest area manager at ADC, a high-tech marketing organization based in San Pedro, Calif.

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## Medical

FROM PAGE 29

man dimensions derived from CAT scans or nuclear magnetic resonance (NMR) techniques, university researchers say.

CAT and NMR scans tend to highlight bony structures and cartilage but do little to show soft-tissue structures.

### The examination

Rather than scanning a body electronically, UIC researchers obtain a physical slice of a cadaver measuring one millimeter thick. This is accomplished by first displacing the water in the body with plastic, which gives the tissue sufficient rigidity to be sliced. The slice is then X-rayed, and the resulting image is stored digitally.

Once entered into the Cyber 2000 system, the Standard Plan data can be accessed by a Cyber 910 graphics workstation, several AT&T microcomputers and an AT&T 3B 40000 minicomputer. All of these computers

run AT&T's Unix System V and can exchange their multimegabyte files on a common network spanning two adjoining labs. A single 3-D image of a human body requires 2.5G bytes of memory.

Because many computers are obtained through vendor grants, UIC's computing philosophy is one of flexibility.

"We want to maintain a multi-

vendor environment," said Thomas Prudhomme, a fund-raising official at UIC who assists the university's chancellor in fund-raising ventures. "We want to provide any faculty member with the computer platform of his choice."

Sometimes platform choices are limited by which vendors choose to donate — or discount — their computer systems for

use at the university.

In the case of Project Da Vinci, AT&T's donation of more than \$1 million in hardware and software products dictated the use of Unix System V. But funds from other grants were used to procure additional computers, Prudhomme said.

Missing children are 'aged'

## Soft notes

FROM PAGE 29

ment organizations and other fund-raising requirements. Advance/SAA will be functionally comparable to Business Systems Resources' current Digital Equipment Corp. VAX and IBM/Cullinet Software, Inc. versions of Advance.

Sybase, Inc., recently opened a Canadian subsidiary that is expected to be headquartered in Toronto. Sybase develops relational database management systems designed for on-line applications.

Vista Financial Systems, Inc., won a contract with American Savings Co. in Omaha to provide on-line data processing services. Under the contract, the bank will install the Vista Financial Terminal System, which is a personal computer-based teller and host system.

IXI Ltd in Cambridge, England, a developer of X Windows standard-related software and services, said it will tailor its desktop manager program, called X.desktop, to support the Open Software Foundation as well as AT&T Open Look style guides.

ComputerSystems, Inc., a developer of banking software specializing in mainframe collection and recovery, said Household Finance Corp. selected ComputerSystems' The Tracker on-line collection system.

Household Finance will use the software package to handle the collection needs of its 800 consumer finance offices located throughout the U.S.

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## Heroes

FROM PAGE 25

will allow applications to be changed much faster as requirements change, he said.

In keeping with the philosophy of using AI to simplify everyday tasks, MCI has used expert systems to automate jobs it understands very well, thereby freeing up an expert's time.

One such application involves managing microwave transmission. A major task at MCI, Microwaves must be monitored to be rerouted and switched to a spare transmission path. To manage this, data on microwave signals is monitored and fed to a surveillance center. The work of poring through this incoming

data and deciding which signals need to be switched to another path was a full-time job.

Today, an expert application developed with Intellisec, Inc.'s Knowledge Engineering System, called the Switch to Spare system, classifies the data and identifies signals that must be re-routed.

At American Mutual Family Insurance Group in Madison,

Wis., the primary focus of expert systems are, like MCI's, not esoteric but everyday applications, according to Herb Thompson, development support supervisor.

One expert systems application, the Equity Data Calculator, calculates the return amount due a customer after insurance has been canceled because of a bounced check. Before this sys-

tem came on-line a month ago, employees had to get information from three different databases and use a calculator to figure out the pro-rated value of a premium and, ultimately, the amount of the return.

In addition to ensuring that money is not returned inappropriately, Thompson estimates that at least 10 minutes of processing time is saved for every

situation in which insurance is canceled because of a bounced check — about 150 times a day.

Users can access the application, which runs in an IBM MVS/XA environment, from standard menu options displayed on their terminals. Using expert systems techniques has drastically cut development time and simplified maintenance, Thompson said.

## DEC

FROM PAGE 25

these changes exceed user-established thresholds, DEC officials said. EMS sensors can be located up to 5,000 feet away from the command-post microprocessor, DEC said.

Users can also customize their levels of response. A first alert to a computer room exceeding its temperature, for example, may be for a warning bell to ring at a central command post. If the temperature rises a few degrees, the whole system could automatically shut down.

The EMS can work as a stand-alone unit, be daisy-chained to seven additional computer installations at a site to form a monitoring network or be hooked via a modem to a system manager's home, DEC's Williams said.

### Environment watch

An optional software package — VAX Remote Environmental Monitoring Software (REMS) — gives an operator the ability to monitor data gathered from an entire network of environmental-monitoring systems.

REMS provides a continually updated database on such things as power conditions, temperature, water and the status of security systems, DEC officials said. When REMS detects an abnormality, it automatically releases alarm signals, sends electronic mail and activates preprogrammed defenses.

If one power supply fails, for example, the software can automatically switch computers to another source while simultaneously notifying systems personnel, said EMS product manager John Turcik.

A basic EMS starter package including a cam-style switch and three dry-contact-type switch sensors that can be connected to a fire alarm or sprinkler system, one water detector, two temperature sensors and an output relay sells for \$5,995. DEC said. A REMS package costs \$3,650.

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## NEW PRODUCTS — SYSTEMS

## Turnkey systems

**Radstone Technology** has announced the 68-33, a Motorola, Inc. 68030-based board for VMEbus multiprocessing applications.

The product reportedly provides up to 2M bytes of quad-buffered, no-wait-state random-access memory and operates at speeds up to 33 MHz. According to the vendor, the board is compatible with a variety of operating systems and software including VNCXEL, a proprietary operating environment based on VRTX32, and Unix.

The 68-33 is priced from \$4,595.

**Radstone**, 1 Blue Hill Plaza, Pearl River, N.Y. 10565. 800-368-2738.

**Sky Computers, Inc.** has introduced a Motorola, Inc. VMEbus version of its Warrior II array processor for Sun Microsystems, Inc. workstations.

The Sky Warrior II/S can reportedly execute complex algorithms up to 27% faster than the company's previous Warrior product for Sun-3 and Sun-4 platforms. Designed specifically for engineering and scientific applications, the board also includes software library for vector subroutines that can be executed from Fortran or C language programs.

The Sky Warrior II/S costs \$11,900.

**Sky Computers**, Foot of John St., Lowell, Mass. 01852. 617-454-6200.

**Intel Corp.** has introduced a set of boards developed to combine the capabilities of its 08386-based processor, Multibus II multiprocessing architecture and DOS-compatible software.

The Multibus II PC Subsystem reportedly consists of a 16-MHz 08386 CPU board, a peripheral card-connection board containing a card-addr controller and IBM Video Graphic Array controller, and an adapter board that allows users to add standard half-length IBM Personal Computer AT and full-length PC AT bus boards.

Scheduled for availability in the second quarter, the products are priced from \$195 to \$4,700.

**Intel**, P.O. Box 58085, Santa Clara, Calif. 95052. 800-548-4725.

**Simpact Associates, Inc.** has released its Real-Time Clock (RTC) for Digital Equipment Corp. VAX-11-class computers.

The RTC is a programmable real-time clock option that is said to provide high-resolution, precise intervals.

Features include a 32-bit-wide counter, and up to 512

events can be timed, counted and stored for subsequent retrieval by the host application program, the vendor said.

The RTC is priced from \$4,990 to \$5,890.

**Simpact**, 9210 Sky Park Court, San Diego, Calif. 92123. 619-565-1865.

## Data storage

An 8-in. 720M-byte Winchester disk drive subsystem has been announced by **Data General Corp.**

The Model 6492-A was designed for medium and large multuser environments and is supported on the DG Eclipse/MV family of computers, the company said.

The Model 6492-A costs \$16,400 and includes one-year on-site warranty.

**DG**, 3400 Computer Drive, Westboro, Mass. 01580. 508-898-4051.

An optical host adapter specifically designed for Digital Equipment Corp.'s Unibus systems has been announced by **Quatalog, Inc.**

The quad-wide QLC-1100 is reportedly compatible with DEC hardware and software. It allows the optical storage system to replace any tape-storage system without modifying the application software, the vendor said.

The QLC-1100 costs \$2,395.

**Quatalog**, 1751 McCarthy Blvd., Milpitas, Calif. 95035. 408-434-5200.

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## NEW PRODUCTS — SOFTWARE

## System software

Burr-Brown Corp. has introduced a transaction processing software package designed to add real-time, networked data collection capabilities to Digital Equipment Corp.'s VAX/VMS-based computer systems.

The **TKV9000** tool manages a network of Burr-Brown data collection devices, the vendor said, and provides a straightforward interface between data collection systems and other manufacturing applications software. A 1,600 bit/in. 9-track tape or TK50 cartridge is included.

Pricing is dependent on individual system configuration.

Burr-Brown, P.O. Box 11400, International Airport Industrial Park, Tucson, Ariz. 85734, 602-746-1111.

An end-user support information system for IBM IMS/DC and CICS environments has been announced by 4.5T North America, Inc.

**TIMS 1.3.1** is an on-demand Help, support and documentation facility that can be accessed from any IMS or CICS transaction, according to the vendor. It was developed to replace manuals and other printed documents with on-line, real-time updates and to reduce end-user training time by making application easier to use.

The software is priced from \$6,000 to \$125,000, depending on configuration.

4.5T North America, Suite 412, Oakwood Corporate Center, 401 Whitney Ave., Greta, La. 70053, 504-366-9944.

## Applications packages

Vista Financial Systems has introduced an on-line, real-time integrated retail banking system.

The **Advanced Financial System** (AFS) software is available for fault-tolerant systems and is said to organize all account, financial and demographic information by customer name rather than by account type. AFS can operate with on-line services or in-house, turnkey systems.

Single-license fees range from \$400,000 to \$700,000, depending on the customer's computing configuration and options purchased.

Vista Financial, Suite 400, 1807 Park 270 Drive, St. Louis, Mo. 63146, 314-678-4210.

Computerline, Inc.'s **Plantrac Project Management System** is now available for Apollo Computer, Inc. workstations running the AT&T Unix System V operating system.

Developed for project managers and planning engineers, the software reportedly offers day-to-day or hour-to-hour scheduling and management of both large and small products. Features include computer-aided design techniques and report-writing capabilities.

According to the vendor, the Plantrac Project Management System for Apollo and Sun Microsystems, Inc. workstations is priced from \$5,995 for a three-user license.

Computerline, P.O. Box 306, 52 School St., Pembroke, Mass. 02359, 617-294-1111.

## Languages

The **Dylakor Co.** division of Sterling Software, Inc. has announced enhanced versions of Dyl-280 and Dyl-280 II, the company's fourth-generation language information management software package.

Designed to run on IBM and compatible mainframes, the product reportedly includes additional keywords in the print function and extended arithmetic capabilities.

Dyl-280 Release 5.5 is priced at \$13,000 for VSE or VM environments, \$16,000 for MVS environments. Dyl-280 II Release 2.5 is priced at \$17,000 for VSE and VM environments. An MVS version costs \$20,000.

Dylakor, P.O. Box 2210, Chatsworth, Calif. 91313, 818-718-8877.



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Douglas Barney

### Slapping the DEC



Failing over and over again. As many have heard, DEC is at it again in the so-called desktop wars. Although DEC has failed in this market with many, many machines, it is useful to separate its efforts into three distinct, though feeble, waves.

The first wave broke in the early 1980s and consisted of three very different architectures: The Decimate dedicated word processor, the Decpro, a sophisticated computer for technical-type users that shared little with its contemporaries, and finally the Amico, a decent yet ill-conceived machine that people still love to laugh at.

The Rainbow was the most visible failure because it was most like an actual personal computer: It ran MS-DOS and used an Intel chip. The problem was that it had its own incompatible RX-50 floppy drives, used a serial instead of a parallel port for printing and needed to have software rewritten in order to run it. Although one can excuse DEC because the machine was essentially designed before the IBM Personal Computer hit the market, the *Continued on page 50*

## Macworld Expo is revisited

*One year later, the Apple/DEC liaison has yet to produce anything*

BY JULIE PITTA

CW STAFF

SAN FRANCISCO — Last week's Macworld Expo marked the one-year anniversary of Apple Computer, Inc.'s much-publicized liaison with Digital Equipment Corp.

That marriage, announced at a hasty assembled press conference that kicked off last year's Macworld Expo, has yet to bear fruit, despite acknowledgment that there was synergy between Apple's Macintosh personal computer and DEC's VAX minicomputer.

"There hasn't been a whole lot concrete that's come out of

the relationship," said Nine Burns, vice-president of Infometrics, Inc., a Santa Clara, California, market research firm.

Separation after the announcement focused on the possibility of the two companies jointly developing products or even the possibility of DEC peddling Macintoshes as terminals to its VAX minicomputers. Neither has happened, and it now seems unlikely that DEC will be hawking Macs following its recent introduction of its own line of desktop systems.

Third-party developers are heartened by the news that neither Apple nor DEC has introduced competing products. "It

was an arrangement of convenience," said Steve Nelson, marketing director at Infometrics, Inc., a third-party developer of Mac-VAX compatibility products. "There was so much hoopla a year ago that made it almost seem like they were merging."

"Not a lot has changed," Nel-

son said. "People were buying Mac-to-VAX connectivity products, and they're continuing to do that."

Third parties are awaiting developer's guidelines for future-generation products.

The Apple-DEC partnership overshadowed a myriad of products as well as new partners introduced by Apple itself. Apple and DEC's relationship is not the only disappointment from last

*Continued on page 49*

## End users navigate hard disks with Magellan

BY DOUGLAS BARNEY

CW STAFF

CAMBRIDGE, Mass. — Some companies sell shell programs that shield users from the difficulties of Microsoft Corp.'s MS-DOS. Others sell tools that search hard disks for particular pieces of information. And others back up data in case of power failure.

Beginning in April, Lotus Development Corp. will offer Magellan, a unique \$199 package that provides file searching capability with a few twists. For instance, once a file is located, the user can read the file using its native file format. This will allow users to view, for example, 1-2-3 worksheets, even though they do not have a copy of 1-2-3.

In addition, Magellan can automatically feed the user into the application that created it to perform further editing.

printing or transmission.

Magellan also implements "fuzzy" searching, allowing users to key in items that approximate what is actually on the disk.

"There is very little here that is actually new," said Lotus Vice-President Ed Below. Instead, it is the combination of techniques that makes Magellan unique, Below said.

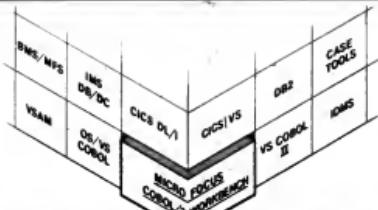
Magellan is also handy for gathering information from a variety of files and putting it together for a report. For example, a user can search a disk for all files that pertain to IBM Personal Computer pricing and pull

*Continued on page 50*

### Inside

- Esber on the Dbase law Page 49.
- Atkins looks at curbside medical care for homeless Page 49.

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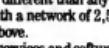
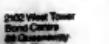
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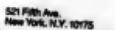
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## An Apple for the '90s

An Apple faces the challenge of evolving Macintosh technology, it does so with a team of executives who are learning to love the Mac.

Apple is 1989's last reminder to the rag-tag company founded in a garage by Steve Jobs and Steve Wozniak. The engineers still wear T-shirts and jeans, and you can still find inflatable beach toys in their cubicles. It's the look in the executive offices that has changed. There, you'll find a group of gray-haired, blue-suited executives who wear blue jeans on Fridays only.

The transformation has been by design. Apple Chairman and Chief Executive John Sculley realized that Apple needed to change its image if it was to be taken seriously by consumers and 1,000 customers. He realized that a blue suit feels more comfortable talking to another blue suit when he's doing business.

The departure of Apple Senior Vice-President of Sales Chuck Boesenberg represents the latest in what has been a series of exits by Apple veterans. Most notably, Del Yocam, one-time Apple veteran and Chief Operating Officer, has announced his resignation, effective later this year. Debbie Coleman, Apple's chief financial officer, has said she will take a leave of absence, eventually returning to Apple in a position of less responsibility a few months from now. Like Yocam, Coleman

*Continued on page 48*

# Esber stands firm behind Dbase lawsuit

### IN PERSON

Late last year, Ashton-Tate Corp. stunned the personal computer world when it sued Dbase cloner Fox Software, Inc. for copyright infringement. The firm must have known that suing a vendor of a popular, high-performance database management system would create a serious backlash.

Simply put, customers like price competition and product choices and do not like lawsuits that seem to be aimed at stifling competition. Consider the matter. Dbase author C. Wayne Ratliff has claimed that Dbase was derived from a DBMS that is essentially in the public domain and not proprietary to Ashton-Tate.

But vendors are not customers and clearly have a different set of goals, such as market share and return on investment. It is this very different set of goals that has prompted Lotus Development Corp., Apple Com-

puter, Inc. and, recently, Ashton-Tate, to sue firms that produce software too much like the original.

*Computerworld* Senior Editor Doug Barney spoke with Ashton-Tate Chairman Ed Esber, who defended his company's actions and explained his organization's rationale for the lawsuit.

You have sought to protect the Dbase language from infringement, but so far, no court has ruled that languages are protected. There is no legal precedent to indicate that the language can't be protected. This is an integral part of the Dbase product. I get upset when I read almost every article on this thing that makes a blanket statement that languages are not protected or aren't part of the copyright law. That is blatantly not true.

The language is ours. We created it. A minute part of it does



Ashton-Tate's Esber

include other public-domain software that under law we can incorporate.

I find it highly ironic that when Ratliff, who wrote Dbase 10 years ago was trying to sell [Dbase] and became an employee of Ashton-Tate — represented certain things and was given \$15 million to \$20 million dollars. Now as a competitor, he suddenly claims that the whole thing was derived from public domain and is not ours. I would be happy to take a refund if he is basically saying that he took it.

What is the distinction between taking placements and concepts from others — and using them to the benefit of users — and outright stealing?

The courts have ruled on a specific thing like that. Everybody clearly has the right to survey the competitor's lists to their customers and to incorporate, in some manner, capabilities derived from customer input.

Fox has made several statements asserting that we "copied a few features from them" and I have stated on many occasions that I hope they win. If they win saying that they win, if they win saying that they took three features, they make our case that they stole 997 features.

**Hean's** Ashton-Tate has revised some of the concepts and methodologies pioneered by others for use in Dbase IV?

There are very few things that the Dbase clone vendors pic-

*Continued on page 48*

## Atlanta tests laptops and curbside clinics

BY WILLIAM BRANDEL  
CN STAFF

Health care agencies face nearly insurmountable odds in trying to medically treat the growing U.S. homeless population. This is namely because few street people regularly go to health clinics or attend the same one more than once.

But a social service agency in Atlanta hopes to give the homeless a better chance of receiving vitally needed medical treatment by putting a squad of mobile health clinics, backed by personal computers, on the streets.

Although the mobile unit program has not been fully implemented, community health service coordinator Bob Stokes said the computer technology has worked successfully in field tests. While there are no guarantees that the agency will eventually treat a majority of Atlanta's sick and injured homeless individuals, what was once impossible can now at least be attempted, thanks to computer technology, he said.

The computerized

tracking effort is the first of its kind, according to Stokes. "Birmingham does data input on a computer, but we're the only ones I know of who are working with a phone line and a handheld PC for on-line access to a homeless person's records," he said.

Three mobile units — each with a doctor, a social service case worker and a driver who assists with medical attention and medical supplies inventory — bring health care to the curbside. Each member of the group assists in the street patient's treatment. The members then update the patient's record on their own

PCs. The data is then transmitted to a central computer site.

The community health services group's mission is to track and medically treat the 16,000 to 12,000 sick and injured homeless people in Atlanta.

**Grease-reference**  
"Because they are migratory, we have no clear census of how many of them are out there or how many are sick," Stokes said. "We only know how many [cases] come in to be treated. Without a computer to cross-reference these files, we can't keep track of them."

Stokes said that the homeless who arrive at the clinics most often need treatment for serious problems, such as respiratory illness, influenza, substance abuse and mental illness.

*Continued on page 50*



## Graphics aid in software development

BY MICHAEL ALEXANDER  
CN STAFF

AUSTIN, Texas — Bringing end users into the application development cycle too late can lead to costly misunderstandings of their needs. Conversely, bringing them in the early often leads to costly delays.

Syntech International's Microstep promises to speed application development, and allow end users to become involved in the process virtually from the beginning.

Microstep ("step" stands for Specification to Executable Program) is a computer-aided software engineering product that

**Syntech's Microstep**  
Price: \$5,000  
• IBM PC/AT compatible  
• Requires 640K bytes memory, DOS 3.1 to 3.2, 30MB bytes hard disk

produces executable C language programs directly from graphical specifications.

The product is designed to improve software development productivity by using four basic features: an engineering graphics design environment, automatic specification analysis, generation of executable code and production of high-quality technical

documentation. Unlike conventional programming tools, which require the developer to describe the operation of an application in words, Microstep makes use of intelligent graphic symbols that enable the developer to draw the application.

Microstep then automatically produces an executable program as well as system documentation directly from the complete specification. According to the company, C language programs generated with Microstep are 100% executable.

"In our initial use of Microstep, we completed a 160-hour step.

*Continued on page 49*

## SOFTTIPS

### Not so fast

Fifth Generation Software's Fastback is a handy disk backup utility but only when the proper version is installed correctly. Here are a few tips.

Version 5.14 of Fastback is designed specifically for PS/2s. If you have a laptop with a 3½-inch hard disk, you must install Version 5.14 in 3½-inch format. If you install Version 5.14 on a laptop, make sure you do not install it for an AT-compatible.

If you are using Fastback on an 80386 machine, you may have problems running the DMA test. If so, the clock speed in the 386 machine is too fast for Fastback. Type MODE SPEED=FAST and run Fastback again. Set the clock back by typing MODE SPEED=ALTO.

*Information provided by*  
*Computer Software, Inc., a Woburn, Mass.-based software developer.*

# Is it Safe?



*North Africa... U.S. paratroopers on the way to their next mission. (Credit: International News Photos)*

**Would You Like to  
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So the next time you are evaluating software for your company, ask yourself the question, "Is it safe?" We can't guarantee that technology won't change, but we can guarantee you the purchasing power to change with technology. And we feel safe in making that statement, simply because our software is that good! Just think. If we didn't have complete confidence in our products, would we make this kind of guarantee?

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## Esber stands

CONTINUED FROM PAGE 45

neered that weren't common in either mini or mainframe databases of computer science for the last 20 years.

For example, SQL is a language that you have to learn. IBM specifically took action to place that in the public domain. There is nothing to say a language is not protectable. For the languages we are used to dealing with in the computer world — Basic, Cobol, C — actions were taken by the inventors or institutions that created them to purposefully put them in the public domain.

We have always asserted that the lan-

guage is an important element of our proprietary right, and we intend to protect it.

Some people are giving us a hard time for not filing the suit earlier. We do not use the courts lightly. We took several actions in other manners besides the legal system to assert our rights, but nobody listened to us.

**What about Wordtech? Aren't they immune from a lawsuit because they sold you technology?** We believe Wordtech is substantially overstating the effect of that release. We have provided that release only to Wordtech and to no one else. The release pertains only to Wordtech problems that existed in 1987 and subsequent versions of those products so long as they haven't

been substantially modified. Dbase IV is not a part of that release. We are watching Wordtech very, very carefully to see what kind of products they bring out.

**What about the IEEE standards committee that is helping to standardize the Dbase language?**

My statement to them is that their committee wants to create their own database language, that is great. But since we believe Dbase is great and protectable, they can't use the name Dbase and can't use the Dbase language.

**Because the court has not ruled on language protection, clone vendors face a period of uncertainty. Is that using the court to lock these**

**people out of particular markets? We do not use the court system to in any way harm legitimate competition.**

**Let's assume Ashton-Tate prevails. What is the benefit for the consumer?**

Who in some respects appear to be competing, somebody sticks their flag up, waves it, and then the competition comes up, waves its own flag and end prices are either going to go up or technology will not move forward. Arguing against either of these issues is like arguing against apple pie and motherhood.

Users will benefit because firms that take risks are ultimately rewarded and will ultimately continue to take risks and bring new things to the market.

## Pitta

CONTINUED FROM PAGE 45

is an Apple veteran, originally hired by cofounder Steve Jobs as controller for his favored Mac division.

Coleman's sabbatical is attributed to health problems. Evidently, the stress of her career has taken its toll. However, she insists that her future is still with Apple. Eventually, she hopes to head an Apple product like Claris.

Yocom's departure is not as easy to explain, although he insists that the decision is his own. In one of Apple's many reorganizations last year, Yocom took a backseat to newer faces. Allen Loren, a former MIS executive at Sigma Insurance, who at the time of the reorganization had been on board for less than a year, became president of Apple USA. Yocom was given the Apple Education division.

Bosenberg leaves at a time when the industry is rife with rumors that Loren is handing out pink slips to many Apple veterans. Bosenberg will become a senior executive at Mips Computer Systems, Inc. in March.

The announcement of his resignation comes only weeks after John Sculley, who headed Apple's desktop publishing group, was the company to become president of Apple third-party software developer, Macintosh.

The change at Apple is not uncommon. Leaders tend to hire and promote in their own image. Like Apple Chairman Sculley, Loren is a member of the East Coast establishment.

Replacing these old-timers is a group of seasoned executives. However, their experience is with Microsoft: MS-DOS-based systems. Gerry Malec, Apple's vice-president of business marketing, and David Casey, vice-president of networking, are both former IBMers.

These and other Apple executives will be responsible for moving the Mac forward. Jobs had a point when he called the Mac "a technology of the '80s." The Mac's operating system surely needs to be updated: It lacks the multitasking capabilities that OS/2 with the Presentation Manager will bring to the Mac's advantage — a graphical user interface — and does it better with more power.

The challenges are formidable. The question remains whether a team of new Mac converts can restore Apple's reputation of being a technology leader.

Pitta is Computerworld's West Coast senior correspondent.

# Beat those multi-vendor technophobia blues.



The symptoms are easy to spot.

You approach your exec VP with an information proposal. It's dotted, T's crossed. Everything's buttoned up, right down to the last byte.

He's impressed, but maybe a little overwhelmed by all those vendors.

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Need to communicate? Need to compute? The answer is

**NYNEX**

## Graphics aid

CONTINUED FROM PAGE 45

application development effort in 10 hours," said Jules Ghedina, principal-in-charge of Pest Marwick Main & Co.'s national technical center based in Montvale, N.J.

"This initial high productivity, combined with the product's design and validation feature, makes it desirable for us to use Microstep on consulting engagements requiring PC application software development," he said.

Syscorp and Pest Marwick recently signed an agreement that calls for the latter to provide implementation assistance, training and custom application development services for Microstep.

An analyst or programmer can use Microstep's mouse-driven, graphic-specific environment that features five sets of design tools to build data flow diagrams, layout screens and format reports as well as describe the application's computations and other activities.

### Resists inconsistencies

Elements of a design specification reportedly can be copied and stored in a data dictionary for use in other specifications, helping to reduce design inconsistencies resulting from redundant development efforts.

The Texas Water Commission in Austin has been using Microstep to develop stand-alone prototype applications. These applications will be used by individual end users in satellite offices to compile data related to water quality and hazardous waste at various sites, said John Wilson, manager of the applications development center.

In a program soon to be under way, end users will receive an application written with Microstep that will be used to tabulate and print data gathered during field inspections.

However, end users will have to send the disks to commission headquarters on a monthly basis rather than upload the information electronically because Microstep is not designed for use on networks, Wilson pointed out. The lack of a networking version is a critical limitation to the product's viability for the water commission, he added.

"We have some other questions about it — for instance, in a tutorial application we're working on — but the folks at Syscorp have been responsive," Wilson added.

### In development

A network version is in the development stage and will probably be available this summer, according to a Syscorp spokesperson.

Microstep runs on an IBM Personal Computer, AT or compatible equipped with 840K bytes of memory, a 20MB-byte hard disk, DOS 3.1 through DOS 3.3, an IBM Enhanced Graphics Adapter or Hercules Computer Technology, Inc. video card and a Microsoft Corp.-compatible mouse. The company's suggested list price is \$5,000.

"The price is probably a little high for its capability because it is basically a single-user product at this point," Wilson said. "But being able to make unlimited runtime copies justifies the price for us. It meets the bill, as we think it will be used by hundreds of people" in the satellite of

## Macworld Expo

CONTINUED FROM PAGE 43

year's Macworld. It also marked Lotus Development Corp.'s reentry into the Macintosh product world with a revamped version of its original Mac software package called Jazz.

Modern Jazz, an integrated software program that debuted three years after the introduction of Jazz, was supposed to be free of the problems that sunk the original program while also adding new capabilities. However, the updated version has proved to be an even bigger failure than its predecessor. According to Infocorp, a Cupertino, Calif.-based market research firm, an estimated 115,500 copies of Jazz

were sold — well below Lotus' expectations.

Modern Jazz never shipped. Months after its Macworld debut, it was scrapped amid reports that Lotus could not resolve some technical problems in the program.

Other products that debuted at last year's Macworld have fared better than Modern Jazz. Apple introduced three laser printers to replace its older Laserwriter and Laserwriter Plus models. The products were an attempt to renew Apple's commitment to the desktop publishing market.

Powered by a new Canon USA, Inc. engine, the new printers were said to offer up to four times the speed of Apple's older products and three times the print life.

The printers have been well received,

according to Robert Pennell, an industry analyst at Datapace, Inc., a San Jose, Calif., market research firm. They boasted features like improved paper-handling capabilities and more fonts, he noted.

However, the products were affected by a shortage of memory components. The entry-level model, the Laserwriter SC, comes standard with 16M bytes of random-access memory. The mid-range model, the Laserwriter NT, and the high-end product, the Laserwriter II NTX, are sold with 21M bytes of RAM as standard features.

The dynamic RAM scarcity forced Apple to raise product prices last September. However, Pennell said Apple was able to maintain its share of 10% to 15% of the laser printer market in 1988.

# Are you Managing Micros by the Books?

The major PC trade journals agree that The Micro Resource Manager (MRM) is the recognized standard for professional micro management. MRM has earned the universal praise of micro managers, MIS directors, and software experts worldwide.

Here's what the "books" are saying...

### PC WORLD

"The beauty of MRM is that it serves as a self-contained environment for the business of micro management... MRM is well conceived and designed, packing a great deal of power and flexibility..."

### PC WEEK

"Overall MRM is highly complete and powerful, but it's a case-of-one factory model accounting the valuable information it contains surprisingly easy." MRM "makes the task of tracking PC equipment not only possible, but also highly efficient and effective... it's hard to imagine a system that would make those tasks easier."

### INFO WORLD

"MIM does everything you could possibly need from a program like this and more... valuable, well-designed, and very powerful specialized database system for microcomputer managers."

### Named MRM to their 1987 top 10 list of multi-user applications.

#### MRM—A TOTAL SOLUTION

MRM is the most comprehensive and sophisticated software available for managing, supporting, and analyzing the use of microcomputers. Track hardware, software, people, programs, or services—by item or by system. Track 100's, 1000's, or 10000's. Analyze budgets and costs to monitor to selected users. Log, track, and cost user requests for support.

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With MRM's "borderline" database navigation, detailed information is always only seconds away. Instantly scrolling through a list of PC configurations, selecting the specific configuration you're looking for, and "zooming" into a summary of the components in that configuration. Then imagine selecting a specific component and "zooming" into the detailed inventory record. All the information you need—hardware, maintenance, purchasing data, and now at your fingertips. Finally, with a single keystroke, you can reassign that component to another configuration.

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## Barney

CONTINUED FROM PAGE 43

company failed completely to respond to the need for compatibility.

That wave flattened out before it hit the shore.

The next wave started to form in late 1986 and was called Vaxmate. This machine was IBM compatible and added advanced communications with DEC VAX minicomputers. But the machine was expensive, provided no color and needed an add-on card for slots and a hard disk. That add-on often overheat and melted and was purchased mostly used for informal office barbecues. I could make a bigger wave in my bathtub.

Now we come to the third wave. Here, DEC has formed an alliance with Tandy to resell Tandy machines and has introduced new workstations. The workstations are for sophisticated engineering-type users, and because of their high cost and marginal compatibility via emulation, they won't impact the PC market.

The Tandy PCs will come in handy for one thing only: to sell to customers who have DEC minicomputers and would be happy to buy all their equipment from the same supplier.

The only problem is, there probably aren't many of these folks. Most corporate users have obtained so-called PC standards from IBM, Compaq and a little bit of Apple. Why would they add Tandy, a company they probably have

never dealt with, to their list?

DEC has made a couple of things clear. It probably won't build its own PCs anymore. It will also try its best to support machines from other vendors so it can sell more minicomputers.

But this does little to face up to the long-term problem of PCs cutting into minicomputer sales. As this trend continues and as DEC continues to swallow the PC business, this may be the most serious threat to DEC's health.

Jobs speaks, but wished he hadn't. Years ago, when Microsoft first showed Apple its Excel integrated spreadsheet, then-Apple Chairman Steve Jobs reportedly scoffed. Jobs just didn't think the typical Mac user would want rows and col-

umns. Wrong! Excel turned out to be the most important Mac application ever. Now Jobs thinks his Next machine doesn't need a floppy disk drive. Hmmm.

You thought the Pakistani virus was bad? The so-called Vienna virus is making its way from Europe to the U.S. and is expected to hit hard in a few short months. This little nasty uses Boolean logic and modulus arithmetic to work its magic. Once triggered, the virus re-writes the first five bytes of a program's .EXE file, rendering it useless, according to Harold Highland, editor in chief of *Computer & Security magazine*.

Barney is a *Computerworld* senior editor, micro-computing.

## Curbside clinics

CONTINUED FROM PAGE 45

To help monitor a homeless person's medical treatment and ensure that he or she receives the proper medication, the group uploads information from a database that cross-references each social worker's input.

According to Bob Mead, president of Lifecare Technologies in Atlanta, these systems can be used by workers who do not know how to use a PC. "Because the PCs are so simple to use, even a volunteer can come in and update a record," he said. "It helps give their program a sense of continuity." Lifecare Technologies donated the technical and consultant resources to develop PC software applications for the Atlanta agency.

End users first enter data into The Write-Top from Lifecare Technologies, Inc. in Reston, Va., by writing with an electronic pen on an LCD screen instead of typing in information. The screen also displays data requested by the user.

When the user writes on the 80- by 25-character screen, a transparent digitizer interprets the input and converts it into digital signals. The signals are then converted to ASCII to resemble input from a keyboard.

The request or entry input is then uploaded to the home-base computer by modem over a private branch exchange telephone line. The medical files are stored in a database on a Hewlett-Packard Co. minicomputer.

## Magellan

CONTINUED FROM PAGE 43

out the relevant portions of each file to see trends or write a memo to a dealer asking for better terms.

The product is clearly aimed at today's character-oriented environment and effectively reads files from Lotus 1-2-3, Symphony, Agenda and Manuscript, as well as WordPerfect Corp.'s WordPerfect, IBM's Displaywriter, Ashton-Tate Corp.'s DBase and MultiMate, Microsoft's Word and Macrosoft International Corp.'s Wordstar.

The Magellan system reportedly works less well with graphically oriented programs that use bit-mapped images, such as Microsoft's Windows applications. However, users of these types of programs are able to read the text contained in these bit-mapped files, according to Lotus officials.

# Is THIS YOUR LINE OF ACTION?

If the telephone is your line of action, one of the ways to keep information moving up that line is through voice processing.

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## NEW PRODUCTS

## Systems

Profit Technology, Inc. has announced the Pro/One Model 35 business computer.

The unit is based on an NEC Corp. V20 processor running at either 4.77 or 10 MHz and can be configured with 640K bytes of memory. Options include an Intel Corp. 8087 math coprocessor, 10M-, or 51/4-in. floppy drives and 20M-, 40M-, or 80M-byte fixed disks.

A basic system with 256K bytes of random-access memory, one 1.2M-byte 51/4-in. floppy drive and a monochrome monitor costs \$795.

Profit Technology, Pro/One Division, Suite 1441, 17 Battery Place, New York, NY 10004. 800-223-4628.



Profit Technology's Model 35

## Software applications packages

Certiflex Corp. has released Version 5.0 of its Certiflexplus Client Write-Up system.

The program has reportedly been enhanced to provide a 250% speed increase over the previous version. The Certiflexplus system also offers on-line Help and 13 printed and data file conversions for all existing client files, according to the company.

The Certiflexplus Client Write-Up 5.0 costs \$995. Current users may upgrade for \$245.

Certiflex, 12920 Seaford Drive, Dallas, Texas 75234. 800-237-8435.

A program for sales and marketing managers using IBM Personal Computer XT's, ATs and compatible systems has been announced by Technical Sales and Marketing Associates.

The Sales Source Manager reportedly maintains separate databases for sales leads territories and addresses, advertising sources and product descriptions. Report- and label-generating capabilities are also included.

The package is priced at \$249. Technical Sales and Marketing, P.O. Box 6655, Fountain Valley, Calif. 92728. 714-968-9838.

Left Coast Software has enhanced its check-writing and personal accounting program for IBM Personal Computer and compatible users.

Eschequer Version 2.0, designed to automate the billing process in small businesses or offices, requires 230K bytes of available memory and one floppy drive. The software reportedly supports

any printer that can handle continuous-feed checks and is priced at \$49.95 plus \$3.00 shipping and handling.

Left Coast, P.O. Box 160601, Cupertino, Calif. 95015. 800-234-0554.

An occupational analysis and job matching system designed for personnel departments, employment agencies and career counselors has been announced by Sophisticated Software Development, Inc.

According to the vendor, Magic can generate employer listings, job orders, job listings, occupational analysis and client ability profiles. The software is priced

at \$2,000 per workstation.

Sophisticated Software, Suite 220, 8625 S.W. Cascade Ave., Beaverton, Ore. 97005. 503-641-4900.

A business forecasting software package has been announced by Concentric Data Systems, Inc.

Trendsetter Expert was designed for sales forecasting, expense projection and inventory planning, according to the vendor. The product reportedly works as an add-on with Lotus Development Corp.'s 1-2-3 Releases 2.0 and 2.01 and Symphony Releases 1.1, 1.2 and 2.0. A hard disk is required for operation.

Trendsetter Expert costs \$149. Concentric, 18 Lynam St., Westboro, Mass. 01581. 508-366-1122.

Tarbell Electronics has announced a database system that offers drawing and picture graphics as a field type, the company said.

The Datasketch system reportedly includes numeric, character, data, multi-line and sound charts and built-in art capabilities. The program requires IBM PC-DOS or Microsoft Corp. MS-DOS 3.0 or higher and an IBM Color Graphics Adapter, Enhanced Graphics Adapter or Hercules Computer Technology, Inc. display, the vendor said.

The \$99 introductory price includes sample programs and files and is not copy protected.

Tarbell, Suite C, 1018 E. Artesia Blvd., Long Beach, Calif. 90805. 213-422-7081.

# A MILLION COBOL PROGRAMMERS ARE A TERRIBLE THING TO WASTE.

It's been fashionable to change languages when you develop for the personal computer. This turns experienced programmers into beginners, and adds a small step called "rewrite the whole system" to each development project. The effect on budget, schedules, standards and staff is painful—and unnecessary.

Realia offers full PC emulations of the tools you know: Realia COBOL, RealCICS, RealDL/I. With no conversion and no retraining, you can move big existing systems to the PC for development, then upload them to the mainframe—or leave them on the PC—for production.

With Realia, COBOL becomes for the PC what it has always been for the mainframe: powerful, flexible, and above all maintainable. Realia's compiler generates highly optimized machine code, with speed and compactness unmatched among PC COBOLs. You get the performance levels of Pascal or C, without the cryptic operators and the learning curve.

Realia also ends your frustration with mainframe programming utilities. Ours are fast, intuitive, full-screen and full-color. From screen manager to BMS map editor to source-level debugger, these tools eclipse anything available on the mainframe.

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Software Publishing Corp. and Autographix, Inc. have announced the start-up of the Autographix Oversight Slide Service for users of Software Publishing's Harvard Graphics software package.

The service reportedly permits Harvard Graphics users to transmit files via modem to authorized Autographix Service Centers and receive 35mm

slides, color overhead transparencies or color prints within 24 hours. The current charge for same-day service and remote 24-hour turnaround is \$12 per color slide. Users of Harvard Graphics 2.1 can receive an overnight slide service kit free of charge by calling 800-548-8558.

Autographix, 100 Fifth Ave., Waltham, Mass. 02154. 617-890-8558.

slides, color overhead transparencies or color prints within 24 hours. The current charge for same-day service and remote 24-hour turnaround is \$12 per color slide. Users of Harvard Graphics 2.1 can receive an overnight slide service kit free of charge by calling 800-548-8558.

Autographix, 100 Fifth Ave., Waltham, Mass. 02154. 617-890-8558.

### Software utilities

Group L Corp. has reduced the price of its full-text retrieval program for IBM Personal Computers and compatible systems.

Designed to transform individual PC files into free-form databases for easy searching, Memory Lane, formerly priced at \$149, is now available for \$99.

The information management utility can reportedly locate text or numbers stored anywhere on a hard disk.

Group L, 481 Carlisle Drive, Herndon, Va. 22070. 703-471-0030.

K-Talk Communications, Inc. has announced a graphics version of its mathematical editing software.

Designed to allow users to compose math expressions for technical documents, Version 1.1 of Mathedit can convert math equations in a PCX graphics file, the vendor said. The product can be inserted into Wordperfect. Corn's Wordperfect 5.0, Aldus Corp.'s PageMaker and several other programs. The package runs on IBM Personal Computers and compatibles and costs \$149.

K-Talk Communications, Suite 100, 50 McMillen Ave., Columbus, Ohio 43201. 614-294-3535.

### Macintosh products

Bitstream, Inc. has announced that it will release its entire typeface library for use with Apple Systems, Inc. Postscript PDF-based typefaces driven by Apple Computer, Inc.'s Macintosh computers.

According to the vendor, the Bitstream Type Library for Postscript will work with several typefaces, including Linotype's?? Linotron and Compu-graphics Corp.'s CG 9400-PS. The first fonts are scheduled for delivery in February.

The library will be priced at \$50 per font, with a minimum purchase of four fonts, according to the vendor.

Bitstream, Athenaeum House, 215 First St., Cambridge, Mass. 02142. 617-497-6322.

DSI Micro, Inc. has expanded its range of training programs for Wordperfect Corp. Wordperfect users to include Quick Course for Wordperfect for the Macintosh.

The system is said to be especially suited for preparing short documents and incorporates four segments for teaching users the basics of the Wordperfect program. An Apple Computer, Inc. Macintosh Plus, Mac II or Mac SE with one 800K-byte floppy disk drive and 512K bytes of memory are required.

The software costs \$69 per unit and includes an outlined program guide.

DSI Micro, 770 Broadway, New York, N.Y. 10003. 212-475-3900.

Working Software, Inc. has released a word processing package for Apple Computer, Inc.'s Macintosh machine.

Called Quickletter, the product can be used either as an application or desk accessory, according to the vendor, and provides the user with several letter composition and formatting features, including a page preview function.

The program requires 512K bytes of random-access memory and costs \$124.95.

Working Software, P.O. Box 1844, Santa Cruz, Calif. 95061. 408-423-5696.

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**Crate Technology, Inc.** announced it has expanded its line of internal hard disk drives for Apple Computer, Inc. Macintosh systems.

The company's Innercater series now includes a 600M-byte drive that is compatible with the Macintosh II. Dubbed the Innercater 600, the unit offers an average access time of 16.5 msec, the vendor said, and is priced at \$3,845.

A 155M-byte tape backup system for the Macintosh was also introduced. Tapecarte 155 reportedly backs up files at 7M byte/min and offers on-screen Help information for all functions. It costs \$1,045.

**Crate Technology**, 6850 Vineyard Ave., Building M, N. Hollywood, Calif. 91605. 818-766-4001.



Crate's 600M-byte Mac drives

#### Development tools

**Meta Systems Ltd.** has announced a MicroStation Corp. PC/Windows computer-aided software engineering (CASE) tool.

QuickSpec reportedly allows systems and software developers to use personal computers for entering, editing and reviewing project information in an object-oriented CASE repository. The program runs under any operating environment supported by Microsoft Windows, the company said, and requires 640K bytes of memory, a hard disk and a mouse.

QuickSpec is priced at \$3,500 and is scheduled for February delivery.

**Meta Systems**, Suite 200, 315 E. Eisenhower Pkwy., Ann Arbor, Mich. 48108. 313-663-6027.

**Gold Hill Computers, Inc.** has announced **GClip Developer 3.1**, the latest release of the company's Common Lisp for personal computers.

Release 3.1 is said to offer an improved graphics interface, which includes support for the Gold Hill Windows graphics package. Enhancements also include faster and more efficient code generation, the vendor said.

GClip 3.1 requires an IBM-compatible, Intel Corp. 80386-based machine with 640K bytes of base memory and a minimum of 3M bytes of extended memory.

It is priced at \$1,995.

**Gold Hill**, 26 Lansdowne St., Cambridge, Mass. 02139. 617-621-3300.

#### Training

A sales training and reinforcement series has been introduced by Profit Technology, Inc.

The Sales Bible Speedulators are said to be DOS-based programs designed to increase selling potential by offering sales personnel short, conversational reinforcement of key selling points.

The software is available in 11 different versions, each concentrating on a specific sales technique.

Each Speedulator has a price tag of \$19.95.

**Profit Technology**, Suite 1441, 17 Battery Place, New York, N.Y. 10004. 800-223-4628.

**DSI Micro, Inc.** has announced two computer-based training courses developed for Ashton-Tate Corp.'s Dbase IV database management program.

Introducing **Dbase IV: Mastering the Control Center** was designed for the nonprogrammer and includes interactive practice sessions and step-by-step instructions. It is available in both 3½- and 5½-in. formats and costs \$159.

**Dbase IV: The New Features** reportedly gives experienced Dbase users

an illustrated guide to the software's enhancements and modified commands and functions. Also available in 3½- and 5½-in. disks, the product is priced at \$75.

**DSI Micro**, 770 Broadway, New York, N.Y. 10003. 212-475-3900.

#### Peripherals

**Genicom Corp.** has unveiled its 3410X series of business-class serial matrix printers.

The product line comprises five models: the 3410XLS, a high-speed data and word processing printer with continuous forms handling; the 3410XHQ, featuring a quiet enclosure; the high-speed color 3410XHQ; the 3410XBQ for bar-code printing; and the 3410XDQ with Digital

Equipment Corp. LA210 emulation capability.

Printing ranges from \$2,010 to \$2,600, and shipments are scheduled for the first quarter.

**Genicom**, Genicom Drive, Waynesboro, Va. 22980. 800-443-6426.

A nine-pin dot matrix printer has been introduced by Seiko-Ekko America, Inc.

Designated the SP-1600A/S, the unit reportedly prints 160 char./sec. in draft mode and 40 char./sec. in near letter quality format. The device is compatible with Epson America, Inc.'s FX and IBM's Graphics printers.

The SP-1600A costs \$329. **Seiko-Ekko**, 1111 MacArthur Blvd., Mahwah, N.J. 07430. 201-529-4655.

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# NETWORKING

## DATA STREAM

Patricia Keefe

### Consider fiber choices



One of the barriers to fiber-optic installations has always been cost. It is not exactly cheap, and it is not for the technically unopacitated. But it is literally the (light) wave of the future. Especially given the promise of 100M-bit Fiber Distributed Data Interface (FDDI).

Proponents of plastic fiber optics would like to alter this picture somewhat. They say they can cut the cost, offer greater tolerance and, most important, bring the camera down to the desk top. Why cope with a tangle of different wiring schemes when you can limit yourself to fiber, which promises flexibility, compactness and indifference to electrical disruptions? And why limit these benefits to campus-backbone only?

Well, maybe because some observers can't see any reason not to use good old fashioned twisted-pair wire to string together work groups and departmental networks. A more secure, tried-and-true option is this Ethernet.

On the other hand, Netronix, which introduced a plastic

Continued on page 63

BY KATY GURLEY  
SPECIAL TO CW

On a routine day at Ingersoll-Rand Co.'s Baxter Springs, Kan., division, about 20 people log onto a local-area network consisting of 40 personal computers. They write reports, create painstakingly intricate graphics on computer-aided design software, retrieve and add information from a database and then store it all — without a thought about whether it will be there tomorrow.

In the course of any given week, about 220M bytes of data are stored on two hard drives and a file server on the LAN. A second crash would spell disaster — two years of data representing world headquarters work could be wiped out oblivion.

Fortunately for these users, system supervisor David Hanon

is in charge of thinking twice. And he would not dream of letting one day go by without backing up every bit of information. "We're using our computer systems to run our business," Hanon says. "If you don't have data backed up, how would we run our business?"

#### Lock of preparation

Good question, says Bill Redman, an analyst at Stamford, Conn.-based research company Gartner Group; Inc. "I'd estimate well under 10% of LANs use a backup system," he says, basing the estimate on the fact that less than 5% of its clients in the Fortune 500 adequately back up LANs or PC drives.

Behind this nonchalance is the fact that LANs are often purchased at the department level by people who understand the need to share information but

not the importance of data security.

Redman predicts an attitude change in the next few years. For example, some MIS departments are taking over responsibility for backing up LANs from users who will not do it. And corporations are learning to protect their data as an investment, asking about backup when they buy systems.

In short, users are beginning to agree with suppliers like Gartner Bolt, president of Emerald

Continued on page 59

#### Inside

• InforNet incorporates packet-switching into T1 products. Page 62.

• A Tytron unit goes Unix-based net management system. Page 64.

### Can plastic cable nets cut costs?

BY PATRICIA KEEFE  
CW STAFF

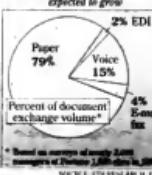
PETALUMA, Calif. — "I have one word of advice for you: plastic." Netronix must have been listening when Benjamin Bradcock received this unexpected bit of counsel in *The Graduate*.

That was almost 20 years ago, but to hear Netronix, that tip holds particular importance for would-be fiber-optic cable users. The network supplier last week introduced Fiberstar, which it claims is the first network to support both plastic- and glass-fiber cable. Plastic fiber, according to Netronix, will bene-

Continued on page 59

### Data View

Starting small  
EDT's narrow share of the document exchange market is expected to grow



### Bridges, gateways open wide at Comnet show

BY ELISABETH HORWITT  
CW STAFF

WASHINGTON D.C. — Local-area network bridges and gateways, hailed by industry observers as the next phase for established LAN installations, are expected to make a big splash in the upcoming Communications Network '89 event.

LAN bridge shipments to-

taled \$83 million to \$100 million in 1987, in the U.S. and should have an annual growth rate in excess of 20% during the next few years, said Bill Redman, service director of local-area communications at the Gartner Group, Inc. in Stamford, Conn.

The following bridge and gateway introductions are expected at Comnet '89, held here the week of February 6:

• Artel Communications Corp. in Hudson, Mass., will announce Manbridge, a 45M bit/sec. version of its Fiberway 802.3 bridge, to provide a high-speed link between Ethernet LANs.

Scheduled to be available early February, the bridge is said to provide two different types of LAN-to-LAN connection. First, it can connect multiple, geographically distributed Ethernet LANs over standard DS3 connections, as provided by AT&T, and other carriers. Second, it can connect multiple 100M bit/sec. Fiberway LANs within a campus area over a 45M bit/sec. token-

Continued on page 62

### Dayna offers DOS-to-Mac cheapnet

OEM version of Advanced Netware undercuts Tops and Apple approaches

BY PATRICIA KEEFE  
CW STAFF

An OEM version of Novell, Inc.'s Advanced Netware could severely undercut Apple Computer, Inc. and market leader Tops at the low end of the MS-DOS-to-Macintosh connectivity market.

Salt Lake City-based Dayna Communications, Inc. is scheduled to launch Daynet, a server-based networking operating system bundled with an interface card, by the end of the first quarter.

Dayna is claiming a marked price advantage over competitive products from Tops, a division of Sun Microsystems, Inc., and Apple.

The pricing differential, according to Dayna, is considerable. Its comparison of an equivalent configuration among the three competitors breaks down as follows:

- To support 20 users in an Apple LocalTalk-only network, Daynet requires software, an interface card and an IBM Personal Computer AT clone for a total price of about \$3,750.
- A similar Tops configuration costs \$7,800 with a server included. Tops software does not run on a dedicated server, but most 20-node networks use it.

Apple's Appleshare approach, which utilizes a dedicated Macintosh II as a server, costs \$8,100, claimed Lynn Alley, Dayna's co-founder and vice-president of re-

search and development. The hardware platform is what constitutes most of the Appleshare configuration cost.

Separately, Daynet's software costs \$1,249 per server for LocalTalk or \$1,749 for LocalTalk and Ethernet. Tops software costs \$249 per node, and Appleshare, which analysts said has not been burning up the sales charts, is \$799 per server.

#### Netware He

At the core of Daynet is Advanced Netware. Dayna co-developed Netware for Macintosh with Novell, which shipped last month. It will reportedly provide basic file and printer services to the Macintosh on an equal basis with Microsoft Corp. MS-DOS-

based computers.

Daynet is a specially tailored low-end version that supports LocalTalk and Ethernet. Also, Daynet file servers can be bridged via LocalTalk or Ethernet cables to any of the estimated installed 300,000 Novell file servers. The interface card bundled with the operating system is Dayna's Daytalk PC Card. The server supports up to four cards or four separate networks.

#### Mainframe-to-Mac

In a separate announcement, Relay Communications, Inc. in Duxbury, Conn., unveiled a Macintosh-to-IBM mainframe file transfer product said to be both the first to display IBM mainframe file lists on Macintosh monitors and the first such link to incorporate Apple's Macintosh development tools.

Macworkstation developers

can use Relay Baton to provide error-free message and file transfer to IBM mainframes running Rely/TSO or Rely/TSO software. Relay's mainframe software serves an unlimited number of Macintoshes running Relay Baton, according to the vendor.

Because Relay Baton takes advantage of the Mac interface, files reportedly can be transferred to and from the mainframe simply by pointing and clicking on file names. This saves Mac users from having to learn IBM mainframe commands and formats.

Support for Apple's MultiFinder enables Relay Baton to execute background file transfers. The product works asynchronous over telephone lines. Scheduled to be available in February, it runs on the Macintosh Plus, SE, II and IIx and costs \$150 per unit.



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# Infotron adds packets, joins T1 integrators Timeplex, NET

BY ELISABETH HORWITZ  
CW STAFF

CHERRY HILL, N.J. — Infotron Systems Corp. recently joined the bandwagon of T1 multiplexer vendors that are integrating packet-switching technology into their equipment.

The ability to send packet-switched data over T1 lines is a high priority for T1 vendors and their users, according to Frank Dzubcek, president of Communications Network Architects, Inc., a Washington, D.C., consulting firm.

"Packetizing makes more efficient use of T1 channels, allowing you to use less

bandwidth for data and more bandwidth for voice, which is circuit-switched," he said.

Two T1 market leaders, Unisys Corp. subsidiary Timeplex, Inc. and Network Equipment Technologies, Inc. (NET), are already providing such capabilities by integrating their switches with packet-switching equipment from their respective subsidiaries.

Last January, NET and its subsidiary Comdesign, Inc. jointly announced the SPX Network Processor, which uses packet technology to handle multiple 9.6K bit/sec. transmission rates over the same 9.6K bit/sec. line, according to Comdesign Product Manager David Hofstatter. Linked to NET's IDNX T1 switch, the multiplexer significantly boosts the utilization of each T1's T1 circuit-switched path, he added. NET also provides a product to manage both T1 and IDNX devices.

Timeplex subsidiary Cygnus Computer Corp., acquired 2½ years ago, provides "the basis for our packet-switching line, Timeplex," said Timeplex spokesman Gregory Langford. Cygnus packet switches and packet assembler-disassemblers can now send data over a 64K bit/sec. channel handled by Timeplex's Link T1 switch family, he added. Further integration of Timeplex's circuit- and packet-switching technologies is in the works, the firm said in a recent statement of direction. Users will be able to manage both types of products with the next version of Timeplex's network management system, TimeplexLink, Langford said.

On the other hand, another T1-switch market leader, Digital Communications Associates, Inc. (DCA), has no current plans to integrate packet and T1 switches, even though the company offers both types of products, a DCA spokeswoman said.

Infotron, based here, announced that it

has entered a joint development agreement with Netric Corp. to integrate Netric's packet-switching technology with Infotron's T1 multiplexers.

Infotron will initially provide its own version of Netric's CCITT standard-based X.25 product as part of its product line in March. By early next year, Infotron multiplexers should be able to carry data from Netric's packet switches and packet assembler-disassemblers, according to Infotron Vice-President of Engineering

Stig Pierson. Co-developed Integrated Digital Network products should also appear around that time, he added. In addition, the two firms plan to integrate their network management systems, according to Pierson.

Netric, a Herndon, Va.-based vendor that sells primarily to systems integrators, already offers a product that allows packet-switched and circuit-switched transmissions to be multiplexed over a 64K bit/sec. line, a company spokesman said. While the company does not yet provide support of T1.5M bit/sec., that is its own, the spokesman hinted that an announcement is forthcoming — probably at the Communication Networks '89 conference in early February, one industry source predicted.

## Bridges

CONTINUED FROM PAGE 55

ring backbone running on coaxial cable. The latter connection can span up to 450 feet without repeaters, Artel said.

Proprietary, high-speed LAN backbones such as Artel's are more suited to handling communications among multiple LANs than products based on current networking standards, Redmond said. However, to gain breakthrough in the market will be high-speed LAN-to-LAN connections based on the Fiber Distributed Data Interface standard, he added.

Artel is also expected to announce an enhancement that is said to allow its Fiberwave family to "carry multiple T1



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This "connectability" provides you with one very important benefit. Vendor independence. The ability to connect to equipment you presently own, as well as to equipment you'll be buying in the future.

In addition to standard networking capabilities, HP AdvanceNet offers many functions not available from IBM and DEC. Functions such as StarLAN 1 and 10, a cost effective link for small companies

signals concurrently with Ethernet traffic," the company said. As a result, FiberOptic can be used as a metropolitan-area network supporting both voice/data T1 links and LAN interconnections, Arstel said. The product is scheduled for release this spring.

• Advanced Computer Communications Corp. (ACC) in Santa Barbara, Calif., is expected to introduce ACS 4100, a bridge said to connect two or more Ethernet LANs over a long-distance link. The 4100 reportedly can perform either as a protocol-independent bridge or as a router that provides more sophisticated connections between devices that use the same networking protocols.

• Computer Network Technology Corp. in New Hope, Minn., will be announcing

extended support for its LanLord 8000 Series of Intern Packet Networking Gateway products, which are said to provide channel-based connections between mainframes and various devices on Ethernet LANs via Transmission Control Protocol/Internet Protocol.

The new LanLord Model 8100 is said to support IBM MVS and VM hosts, while the Model 8200 is said to support Digital Equipment Corp. Unibus or BI bus systems.

• Crosscom Corp. in Marlboro, Mass., is expected to announce three token-ring LAN bridges. The first will connect multiple LANs, the second will connect a LAN to a 1.5M bit/sec. T1 long-distance link and the third will connect a LAN to a 56K bit/sec. long-distance connection.

## Keefer

CONTINUED FROM PAGE 55

tic and glass-fiber network last week (see related story page 55), claims to have overcome some of the drawbacks to plastic. It also maintains that plastic fiber is more secure and comparable in price to copper twisted-pair cable.

Even so, "It won't be really crucial to bring fiber to the desk top until the advent of super high-powered workstations," predicts Richard Cerny, president of Trellis Communications, a Salem, N.H.-based systems integrator that specializes in fiber-optics technology.

With numerous campus installations under his belt, Cerny says he has seldom

encountered a need to bring fiber to the desk top. "And if we did, we'd bring glass to the top, so that it could hook into the glass backbone," he says.

This brings up another issue worth considering: Two glass-fiber cables of different diameters can be tied together more easily than can be done with plastic to glass, claims Bill Redman, an analyst at the Gartner Group, a Stamford, Conn.-based market research firm.

Netromax would dispute this point, given that it is suggesting that users who want to travel greater distances than are possible over plastic fiber, hook into glass-fiber cable. The supplier also claims that plastic fiber's bigger core, through which it transports light, is less susceptible to interference from sources such as dust particles.

Plastic fiber's ace in the hole seems to be the promise of lower costs and simple installation. But it is hard to compare the cost of a desktop configuration rugged up with plastic fiber — such as Netromax seems to be targeting — with a campus network wired with glass.

Redman and Cerny also take issue with the premise that plastic is easier to deal with than glass. Both fibers are fair-

**P**LASTIC FIBER's ace in the hole seems to be the promise of lower costs and simple installation.

ly flexible and both degrade as they age. Plastic may be less sensitive to rough handling than glass, but it is also more likely to discolor, affecting light transmission and bandwidth. And it may be more prone to kinking, which would scatter light signals.

"If plastic was cheaper and more reliable, they would be AT&T, Sicom and Corning Glass pulling it," adds a skeptical Redman. These vendors have invested heavily in glass-fiber optics. Not surprisingly, they have put considerable weight behind the emerging FDDI standard, which requires glass fiber.

Another factor connecting glass fiber's popularity is IBM's recent decision to purchase 25% of POC, an optoelectronics subsidiary of Corning Glass. IBM is committed to FDDI and has promised users an FDDI product by year end.

"IBM has an absolute need for this technology. You just can't build mainframe complexes without fiber anymore," says consultant Frank Dubcek, president of Communications Network Architects.

What this all boils down to, Trellis' Cerny says, is that a decision to go with plastic fiber is a nonstandard decision. This may be perfectly acceptable to a lot of users, especially if plastic fiber can be cleanly linked to other network media.

As always, users need to make decisions based on factors such as their future directions (FDDI), how well suppliers are able to overcome plastic's shortcomings — for example, shorter distances and smaller bandwidth — and how entrenched glass or twisted-pair cable is in their systems.

Plastic is certainly worth taking a look at. Just be on the lookout for any hidden or intangible costs.

*Koen is a Computerworld senior editor, networking.*



## making them talk.

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## NEW PRODUCTS

**Local-area networking hardware**

Crosscom Corp. has announced a fiber-optic adapter card designed to add fiber-optic network capability to any IBM Personal Computer XT, AT or compatible system.

The FA1 provides both single- and dual-fiber capability that supports 62.5 to 100nm cable as well as a connector for the Ethernet. The card uses a half-length PC bus card and is said to be transparent to existing network software. The FA1 costs \$995.

Crosscom, P.O. Box 699, Marlboro, Mass. 01752. 508-481-4060.

Cabletron Systems, Inc. has announced a multiport twisted-pair repeater designed to increase flexibility when connecting twisted-pair and coaxial Ethernet local-area network segments.

The Model MR9000TPT is intended for small work groups running Ethernet over twisted-pair requiring connection to existing coaxial or fiber LANs and backbone networks, the vendor said.

Up to eight twisted-pair segments can be connected via RJ-45 ports, and the product reportedly includes full IEEE 802.3 repeater functions.

The MR9000TPT has a price tag of \$2,895. Cabletron, P.O. Box 6257, Rochester, N.H. 03867. 603-332-9400.

**Local-area networking software**

Data Race, Inc. has added networking features to its PC-Race Fax software that supports user originate, send, view or receive received Group III facsimile messages.

The enhancement reportedly converts any IBM Personal Computer or Personal System/2 that is equipped with a DataRace Mastermodem into a fax server for any member of a DOS local-area network.

The upgrade is free to all registered users, and the upgraded Mastermodem PC-Race Fax package is available for \$295.

Data Race, Suite 108, 12758 Cimarron Pkwy, San Antonio, Texas 78249. 512-692-3909.

**Tymnet gets Unix management**

McDonnell Douglas Network Systems Co. in San Jose has unveiled an end-to-end Unix-based network management system for users of the company's Tymnet networks.

According to the vendor, the system was designed to provide customers with a framework for future integration needs.

A recent report by Framingham, Mass.-based Intermarket Technology Data Council found that 50% of network users have as many as three different network management systems installed, while another 32% use as many as six — each designed to support only one vendor's line of equipment.

The McDonnell Douglas product will operate in a variety of vendor environments, the company claims, and will accommodate the integration of other network management systems such as Netview, IBM's host-based offering. The product is built around a Sun Microsystems, Inc. server and access workstations and was designed to optimize resource usage while minimizing overhead.

The system reportedly handles net-

work access and routing; data collection; monitoring and control; performance and utilization; and configuration management. It also



McDonnell Douglas' addresses integration

provides security and automated trouble ticket reporting.

The system is scheduled for delivery late this year, and pricing will be between 10% and 20% of overall network costs, depending on the client's individual requirements and the existing hardware configuration.

McDonnell Douglas Network Systems, 2560 N. First St., San Jose, Calif. 95131. 408-922-0250.

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One of The Travelers Companies, One Tower Square, Hartford, Connecticut 06183

Analyzer is a product of Alter Computer Group and is marketed and supported by TRAVTECH, Inc.

Torus Systems, Inc. has announced a Netware Integration Option for its Tapestry II LAN Manager product line.

According to the vendor, the option will permit an unprecedented degree of integration between Novell, Inc. Netware servers and Microsoft Corp. OS/2 LAN Manager servers on the same network.

The Netware Integration Option is offered as an add-on to Tapestry II LAN Manager and is priced at \$295.

Torus, 240 B Twin Dolphin Drive, Redwood City, Calif. 94065. 415-594-9336.

A software utility said to be capable of detecting security on all versions of Novell, Inc.'s Advanced Netware has been released by Network Business Systems. The Netrack program requires access to the network and a host and a build-up of NET/OS.EXE. After using the product, the network will have only default users and default security but no password. Netrack costs \$99.

Network Business Systems, Suite 15601, 1300 Woodhollow Road, Houston, Texas 77057. 713-781-9288.

### Links

Software that connects independent IBM Systems Network Architecture networks using the IBM 3737 Remote Channel-to-Channel Unit has been announced by NTX Communications Corp.

Cross Network Facility/Channel-to-Channel is said to be a VTAM application running under IBM's MVS/XA MVS/370. It was designed to provide a transparent interface between several VTAM applications, including several Datalink, JES2/NCP, CICS and IMS.

Scheduled for delivery this quarter, the product is priced at \$36,000. NTX, 508 Tasman Drive, Sunnyvale, Calif. 94089. 408-747-1444.

Simware, Inc. has released Version 2.0 of Mac3270, the company's compatibility product for Apple Computer, Inc. Macintoshes and IBM mainframes.

Version 2.0 reportedly supports all popular 3270 emulation methods and provides error-free two-way Macintosh-to-mainframe file transfer capability across several communications paths.

An asynchronous version is available for \$250; the Master version of Mac3270 Version 2.0 is priced at \$325.

Simware, 20 Colleone Road, Ottawa, Ont., Canada K2E 7M6. 613-727-1779.

Forest Computer has unveiled the AS/400 Adapter, which is designed to enable Digital Equipment Corp. Decnet-based terminals to access IBM Application Program/400s via a full-screen IBM 3270 device, and AS/400-based terminals to access Decnet as full-screen DEC VT220 units.

Available now, the processor and AS/400 adapter cost from \$35,000. Forest Computer, 1749 Hamilton Road, Okemos, Mich. 488-349-4700.

### Electronic mail

Wang Laboratories, Inc. has introduced Wang Office/Voice Mail, a voice messaging system that runs on Wang's VS computers.

The product was designed to be integrated with VS Office Electronic Mail to form a single communications medium for sharing data, text, image and voice, the vendor said. The system consists of three components: Automated Attendant, Message Center and Voice Mail.

VS Office/Voice Mail is priced at \$2,500 for license. VS Office software is licensed separately and is priced from \$5,000 to \$18,000.

Wang, One Industrial Ave., Lowell, Mass. 01851. 508-459-5000.

# EXECUTIVE REPORT

## THE RESTRUCTURING OF MIS

# Data centers: Dropping walls and building new identities

BY PATRICIA CINELLI

**D**ata centers aren't what they used to be. Major alterations are taking place in these units as they begin to adapt to new realities and new expectations.

At the beginning of this decade, the idea of isolated preserves of computing power made sense, says Vin Tomassoli, vice-president of the Chase Financial Services Data Center at Chase Manhattan Bank N.A. But since then, a lot has changed.

At one time, hardware was unstable and had to be protected, Tomassoli explains. Now it is robust and powerful and designed for exploitation. Previously, the goal was to develop systems. Now and in the future, the emphasis will be to develop systems rapidly. Work used to be done in batch mode. Now, the predominant orientation is online. Fragmented telecommunications has started to coalesce, creating the outline of a unified information environment that must not only be managed but also leveraged for organizational benefit.

### Revisions ahead

The net effect of all these changes, Tomassoli and other information systems executives agree, has been a rewriting of both job descriptions and data center procedures.

In the past, the data center operated at the survival level, with all things being done to maintain its mere existence, Tomassoli states. These days, data centers are geared toward servicing and supporting the user or the business customer.

"You have a new set of objectives when you don't have to worry about the data center going down," he says. "Now, the focus of the data center is in defining information to customers — what they want and when they want it, because today's businesses look to their data centers as the source of a competitive



Quaker Oats' Brzezinski heralds the data center's evolution.

edge," Tomassoli adds.

That change in expectations, says Ron Brzezinski, vice-president of information systems at Quaker Oats Co. in Chicago, has transformed what used to be a backroom operation into "the hub of the organization."

The proliferation of technology outside the computer room at Quaker Oats has not diminished the work of the computer contrary, it has added new layers of responsibility. "We have a fiber-optic backbone network strung throughout our building," he says. "We have LANs and numerous interconnected desktop computers. This web of technology has to be managed just like the mainframe."

Furthermore, management of the expanding information systems web is not simply a matter of mechanics. Data center

personnel are not just being asked to understand, connect, maintain, create and secure new kinds of systems; they must also adjust to entirely new quantities and types of demands.

On the technical areas, data centers are now open to business units in multiple ways. "The same manager who used to control the 'off-limits' data center now manages the company's technological network," Brzezinski says. "He now has continuous contact with business needs and clients' applications in his day-to-day operations."

### Tough questions

And he adds, because technology has become a familiar and integral aid to decision making, the requests and questions received are not as easy to solve as they once were.

### INSIDE

## Automation redefines management

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## New options for existing personnel

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Once a typical user question fielded by the Quaker Oats data center's Help desk would have been something like "Can my report be out on time?" These days, staff are hearing questions such as, "I can't access my information. What's wrong?" Brzezinski says the Help desk has effectively become "the first line of problem resolution for the entire company."

This heightened role is reflected both in a name change — Quaker Oats has renamed its Help desk "the command center" — and in staffing level. "Two years ago," Brzezinski says, "we had one person on the Help desk. Today, we have six."

Not only on Help desks, but throughout the entire data center structure, a reorientation is taking place, from technical administration to customer service.

At Chase Manhattan, for example, Tomassoli says that the articulated goals for the organization's 110 data centers worldwide are dissemination of information to the business departments and close collaboration with business department users or "customers."

There are a number of ways that those goals translate into actions. Applications are being designed to meet customer requirements, Tomassoli says, but that is only the beginning. Job functions within the data centers are also being altered to enhance user satisfaction.

One instance of this, he says, is a new functional concentration on incident management, which goes beyond simply identifying and treating system problems to locate and rectify their root causes.

Effecting this kind of change in the orientation of a data center is not easy. "It takes a while," Tomassoli observes, "to master the dynamics." And trying to do so without finding a better way to lessen the already existing technical load is about as tricky as trying to execute a U-turn in a speeding vehicle.

Even without the added responsibilities of network maintenance and substantive user support, operations staff have their

Cinelli is a free-lance writer based in Washington, D.C.

## Data centers

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hands full handling increased message volume and keeping up system service levels in an online environment.

### Selling like hotcakes

That is why software products designed to automate a variety of chores performed within the data center have recently become a high priority on many managers' shopping lists. Tape library systems, job scheduling systems and automated documentation systems, which have been available for a number of years, are selling better than ever.

And newer categories of automated operations products, such as performance monitors, problem change management systems, chargeback systems, report distribution systems, automated balancing systems and console management systems, are finding an eager market.

"Recently, we've seen a big push toward automated console management systems, which alleviate the need for operator or manual intervention," says Neal Ater, vice-president of research and development at Goal Systems International, Inc., an international company that makes software for the IBM mainframe.

The most basic level of console automation, according to Ater, is message-reduction software that "sits between the console and the message and throws away messages you don't need to see," he says. The next phase is a software package developed by the company that can automatically standard responses or repetitive actions.

Just the first level represents a major assist for operators, according to Tomassoli. At one time, an operator's main task was to defend himself against the onslaught of calls, he says. Using products that screen spurious messages allows him to concentrate on more substantial chores.

"The environment became so complex that we had to have programs that could identify and resolve problems while we were driving down the highway at 60 mph," adds Gary Kirkham, a consultant with Forecasting Planning Associates, headquartered in New York City.

With partial automation, operations staff are freed from some of the routine chores such as scheduling, tape management or console monitoring and given increased latitude for new responsibilities.

Guardian Life Insurance Co. of America in New York can attest to the efficiencies that a change in emphasis produces. Thanks in large part to its adoption of several automation products, the insurance company found it could merge its New York data center with its Bethel, Pa., operation and also absorb additional work without hiring additional people. The merger occurred just before Thanksgiving last year.

"Except for a skeleton crew, the New York staff was redistributed and assigned other functions in data processing," says Alex Polovovich, systems programmer.



**Neal Ater**  
Says Goal Systems' software "sits between the console and the message and throws away messages you don't need to see."

Although Polovovich did not formally plan for the consolidation, he says that the transition was a smooth one, partially because Guardian had begun automating functions within the data center several years ago.

The organization had been gearing up for such a change, he explains, by using automated products such as Computer Associates International, Inc.'s CA7, an automated scheduling package; CA's CA1, an automated tape management package; and IBM cartridge loaders for tapes.

The most recent addition to the mix was Candle Corp.'s AF/Operator, a package that catches all commands issued to the system, takes action, tries to correct errors and contacts operators immediately to prevent backlog. Using AF/Operator saved the Guardian data center from hiring about seven extra people, he claims.

### The real motives

Polovovich stresses, however, that the merging of data centers was not motivated only by budgetary considerations. Cost cutting was definitely a factor, he says, but data center managers must now communicate to their staffs the message that automation and functional changes in

the data center are both necessary and well-intentioned.

In most cases, however, total automation and wholesale layoffs are not the real purpose. Brazenaki, for example, is careful to point out that the moves toward data center automation at Quaker Oats are not necessarily a prelude to layoffs or staff reductions.

The objective, he says, is to expand management responsibilities throughout the organization and to integrate the technology. Even so, he admits this may not be an easy adaptation for either data center staffs or managers. "It's tough because you are taking people who have been isolated [in the organization] and making them a part of the business," Brazenaki says.

But a convincing case can be made that revamping data centers and the automation of some manual functions creates a more rewarding job path for most data center personnel.

Forecasting Planning's Kirkham, for example, predicts that some operators will move into systems programmer positions. "With the boom in micros," he adds, "those not attuned to programming can move into micro maintenance and wire management."

### Time on their side

At the Washington, D.C., data center of the American Association of Retired Persons, Center Manager Ed Hopkins says that automation products have definitely changed the jobs of his operators for the better. "Operators have more time to do things like monitor system performance, do capacity planning and work with users, a task that has gradually moved out of the director's realm and into the realm of the operators," he notes.

And, at Perpetual Savings Bank, PSB, in Alexandria, Va., Ross Markley, data center manager, says CA's CA-Scheduler package, which took over all the scheduling on the bank's IBM 3090, served as a good first job advancement. "Now a scheduler is sent to school," he says, "and we have changed from basically a clerical staff to a more technical one."

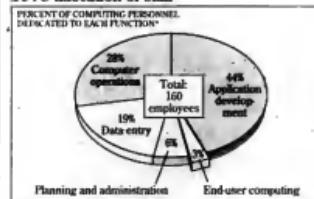
One of the benefits of automation is that it allows the bank to grow without adding to the data center staff, Markley says. Since he joined Perpetual about 2½ years ago at a point when the bank was just beginning to install automated products, Markley says the data center work load has increased about 150% to 200%, but the staff has not increased at all.

Now, he says, "A bigger portion of our budget is going to equipment and software which is more cost-effective than paying for additional staff." The cost savings, however, are not in hiring new workers, rather than eliminating existing personnel.

## A case of shifting priorities

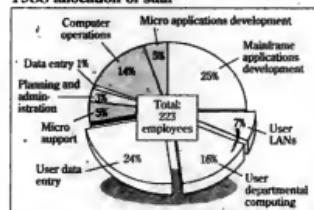
What follows is a picture of how an insurance company has already altered its MIS staff distribution and how it sees that distribution shaping up 10 years from now. The company, studied by Forecasting Planning Associates, is described as a mature firm with an effective management control system, strong internal controls and moderate growth.

### 1978 allocation of staff



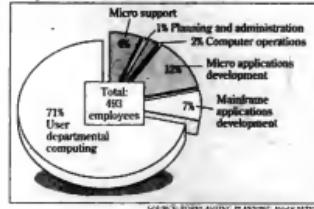
In 1978, most of the staff allocations were applied to applications development, with computer operations taking second place and data entry third. Only a negligible 3% of the staff was allocated to support end-user computing that year.

### 1988 allocation of staff



By 1988, user-related activities had risen substantially on the staffing allocation agenda, while the percentage of the computer operations staffing was only half of the 1978 allocation level and data entry staffing was down to only 1%.

### Projected 1998 allocation of staff



The company is forecasting even greater changes for 1998, ones that will further deemphasize staffing for traditional data center functions for the following reasons:

- Intel Corp. 80486/80386 chip technology will dominate the market.
- Computer-aided software engineering will mature.
- Commercial software offerings will continue to improve.
- Automated operations will be tightly integrated with the mainframe operating system.
- Bar coding and optical scanning will eliminate data entry.
- Optical-disk technology will be used for storage.
- Automated network linkage will be in place.

## INTERVIEW

## Data center managers tackle the automation imperative

**L**eonard Eckhaus is president of the Association for Computer Operations Management (AFCOM), a group of operations management professionals primarily working in large-scale data centers. AFOCM's mission is to help its members respond to changes in the data processing environment that introduce new management challenges. Eckhaus spoke recently with Computerworld Senior Editor Joanne Kelleher about how automation is altering data center operations.

**What do you consider the major management challenge facing operations managers right now?**

Automation is the single biggest thing coming and will have the most impact of anything going on today. The changes, in terms of operations, are going to be dramatic. End-user computing, where inputting data, printing reports, and so on are being passed on to the user, is reducing staff in the operation. Operations managers are going to have to deal with people problems because there will be an elimination of jobs.

**Some of that is already happening isn't it?**

Yes. Most data centers have either totally eliminated the data entry department or reduced it to just a few people working on miscellaneous things that come in. It is also evident that there is going to be an elimination of most or all of the computer operators in terms of the traditional work they now do such as mounting tapes, pulling forms from the printer or responding to console messages.

**Do you have any sense of where these people are going, how they are being used?**

In a lot of cases, the jobs are just disappearing and the people aren't being moved elsewhere. There are other areas in operations that some data entry people can go into. They can function, for in-

stance, as data control clerks. But for the most part, the people are just being let go. Data entry departments are on their way out.

**I take it that you think there are better alternatives.**

I think that if automation is going to work, even the people whose jobs are going to be phased out have to somehow be assured that they will be retrained for better jobs in the data center or that they will wind up working in a user department in which they will be viewed as experts.

**What do you see as some of the new roles for staff? What kinds of roles are there going to be?**

What is going to come in is an addition of higher level technical analyst positions in which the job will be to monitor system activity and react to conditions that the automated systems bring to their attention.

We'll also see things like performance measurement analysis, systems software analysts and programmer analysts in the operation. Now, these positions obviously already exist in areas outside the operation. But when we get close to unattended operations, these positions will have to be in the operations area.

**A little earlier, you mentioned the idea of personnel actually going out into the end-user departments. Do you, in fact, expect that there will be staff attached to the data center or to the operations area who will serve as sort of resident consultants in the business departments?**

I'm sure there will be, although what I was referring to before is that end-user departments are going to want to have some people with DP backgrounds working for them. I think we'll see both kinds of arrangements. It is likely that there will be people in the data center who will spend all their time interfacing with the end-user departments, training them,

helping to get service on their equipment and so forth. But I also think that some of the [displaced] people will end up working in the user departments.

**Do you have a sense of the likely time frame for widespread automation?**

Well, people talk about automation and they talk about unattended or lights-out operations. There is really a big difference. Today, unattended is still a concept. Almost nobody is truly running unattended. Automation, on the other hand,

**Are operations managers taking charge of automation efforts, or are they letting the vendors set the pace and the direction?**

Up until now, it has been more the vendors taking the lead. But now, operations managers are realizing that this is the wave of the future, and they must take control of the situation and be involved in actually coming up with a plan to get automated.

**What caused this change of heart?**

Operations managers are realizing that they need to be automated just to keep up with today's computer equipment. For example, with the internal speed of today's computers, the number of messages that are generated on a console can become impossible for an operator to handle. So console management that will answer standard console messages becomes almost a necessity if you want to keep the system running efficiently.

**Are there any other areas in which the pressures are becoming such that they can be humanly handled?**

Maybe not more than can be humanly handled, but you have to remember that every time there is a human handling, it takes time. You've got a CPU sitting there and if it waits one second, that second on some CPU's could have been used to perform several million additions. Where things are automated, you gain all

*Continued on next page*



AFCOM's Eckhaus

is something that is here. Virtually all large-scale data centers have some degree of automation; they have a tape library system or a scheduling system, or they have two or three or four or five different software systems.

## Data centers

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he says. There is also a portion of the budget set aside for retraining and continuing education of data center staff.

Markley says he fully expects that the data centers he and other managers will be overseeing in a few years will be at least qualitatively different from what has existed.

## Adapting to survive

In order for data centers to survive, he says, they will have to be automated and well controlled in functions such as scheduling, report distribution, performance and capacity planning. They will also have to process information quickly and accurately.

"In the past, we could see the need for an upgrading of a CPU coming years in advance," Markley reports. "Now and in

the future, we will have to watch month by month and be able to react very quickly to the situation."

Furthermore, Markley adds, "People in the network side of data centers need to become more refined in their public relations ability and in their knowledge of how PCs interact with the mainframe. The big focus is peripheral and eventually eventually we will be seeing lots of data."

Data center managers are also due for a change, according to Quaker Oats' Brzinski. Their role, he says, is changing to something that might be more accurately described as a technology center manager. And the requirements for that type of position are quite different. It is a job that will require both strong technology awareness and a business applications perspective.

"Before, we were satisfied with someone who could enforce schedules and manage vendors, but in the future, that will not be good enough," he says. \*

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## Interview

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of that time back.

Is there any top-down pressure being applied by, say, the head of MIS?

It may come from the head of MIS but certainly no higher. In most cases, it goes the other way. The operations manager who wants to do more automation is having to justify it and go in and say, "I'm going to be able to save dollars in terms of head count" or "I'm going to be able to service the user much better."

The way that this is often dis-

cussed is as returning management to the end user through automation. The question is, If you return management to the end user, exactly what does that leave in terms of data center or operations duties?

What we are really talking about is returning some of the control to end users. There are some things that are doing now that used to be done in the computer center, like inputting data, getting output directly back. In some installations, users can, within certain limits, even schedule their own work in terms of when it is going to run. They're not doing the job of running the systems or of maintaining the hardware, but they are going to have more control over their own work.

Is increased automation the only major change affecting data center operations? How about downsizing?

Over the last few years, we've begun to see downsizing in some medium-size data centers as they go from mainframes to minis. It is still not a major thing, but it is happening in small numbers. When you go from large mainframes to large minis, some of the traditional operations stuff is no longer necessary. Maintenance is different. The kinds of operating systems you are using are different. It changes the name of the game for operations.

Is there any possibility that, to a certain extent, the willingness to

entertain the idea of automating operations results from seeing it as an alternative to wholesale downsizing?

I'm not sure. I don't really think so. Downsizing is a term that means different things to different people. You could replace one large mainframe computer system with 10 minicomputer systems. In that case, would you really be downsizing or are you creating more problems and more areas to get involved in?

How about downsizing in the sense of certain functions moving out into the departments on either departmental minis or local-area networks? What impact is that having?

One of the things that happens is that some of the budgets for hardware wind up going into the end-user departments. Also, the end users are getting more sophisticated, so they want more input on what kind of hardware is going to be purchased for their use. So the data center becomes much more of a service area, and the job becomes more one of servicing requests than of dictating what can or can't be done.

This may be the way it should always have been, but it is only recently, I think, that people in data processing have been realizing that they really are a service adjunct and not the company's main business.

Do you see any of these changes affecting the data center's relationship to other parts of the MIS organization?

Yes. One way is in terms of status. In the past, operations managers have been much more managers of people and large budgets than they have been managers of technology. It is strange because it is a reversal of the way the rest of the world operates, but, in a technical field, that really becomes a hindrance in terms of professional recognition.

In a technical area, when you look at managers in terms of status, the more technical the people in the area, the more recognition [the area] is given. Through automation and the elimination of the lower-level jobs and the growth of the higher technical-level jobs, these managers are starting to be looked at as managing technology.

So there are some real benefits in automation for the operations manager?

Oh, I think there are a lot of benefits. They're not going to be fighting wars all the time trying to explain why things went wrong. There won't be as many day-to-day problems coming up in the operation in terms of production.

What should the wise operations manager be doing now to guide the automation process and make sure that it is on track?

I think the wise operations manager is looking at his data center as it stands and the applications that are being run today as well as where that data center is going — what is going to be happening to the work load, what new applications are coming up — and developing a plan to get automation installed.

There really has to be a plan for automation because, in many cases, operations managers are going to have to justify the up-front costs that are involved. \*

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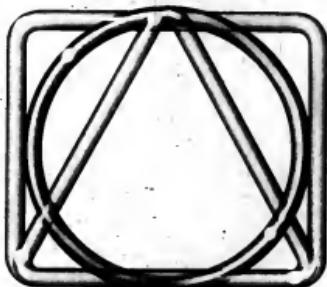
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# The writing on the data centers' walls

*What they are doing today,  
where they will be tomorrow*

It is widely acknowledged that data centers are entering a period of considerable change. In the interest of getting a better reading on the force and direction of this phenomenon, *Computerworld* spoke with a number of information systems managers working at or near the epicenter of changes that have already taken place in their organizations' data centers and what further developments are expected.



**Robert Martinko**  
Manager, Information processing:  
East Ohio Gas Co.

**Here and now:** "In our own corporate center, we're going to unmanned rooms, where your CPUs, your controllers, your jazzzy devices are being isolated away from the mainstream of activity."

**Around the corner:** "The next move is PCs totally being capable of interfacing with the host. Some of them are becoming so powerful, you'd think they're little hosts in their own right, right now."

"In some cases, you're probably going to see some shrinkage in staffing of corporate data centers because of the database structures that are becoming more and

more prevalent. Data is going to be much more readily accessible from remote areas, even by way of PCs."



**Ronald Korch**  
Second vice-president,  
corporate technology services  
Unum Life Insurance Co.

**Here and now:** "There will always be large, central data centers. I don't think there's going to be any major revolutions in the next five years. There will be larger and faster mainframes and more sophisticated software. How they're managed will be important and the technical expertise to manage them is going to be critical. I think operations will evolve into a more challenging role than it is today."

**Around the corner:** "If the company doesn't require or dictate that you're a profit center, then profit-center-type management practices will need to be in place. Using such techniques keeps you competitive. You're going to carefully select vendors and products to keep expenses down, not unlike if you were offering an insurance product to someone. It's like running a business."



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**Here and now:** "One popular buzzword is automated operations or remote automation that, in our data center, I see this as having a very gradual occurrence ... getting ourselves into a position where we can run more jobs unattended as opposed to a lot of operator interface."

**Around the corner:** "I think operations managers are going to have to learn more about voice communications because there seems to be some tendency to combine voice and data communication under one area, and frequently that's going to come under operations." \*

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# Care and feeding of specialists

BY PETER BERKELEY

Like it or not, the role of data centers is changing, from one of manual-intensive operations to one of support and service delivery.

Where once sequential tape drivers dominated the computer room landscape, there are rows of mass storage direct-access devices, which make data storage and retrieval much more expedient. As a

Berkley is director of education products and services at Operations Technology Corp., an MIS consulting firm in Southboro, Mass.

result, tape operators and tape librarians are, for the most part, on the decline.

Data entry personnel, print operators, bursters and de-collators are suffering similar fates, as more data centers transfer responsibility for both input and output back to users.

Although the value of such labor-intensive data center functions is declining, data center staff have not reached a dead end. The transformation of organizational computing is opening up new opportunities for retasking the skills of existing staff. If they haven't already, data center personnel will soon be asked to perform

new kinds of functions demanding new kinds of skills. They will be asked to perform as highly skilled knowledge worker professionals.

#### Users demand more

Users are coming to expect and demand higher levels of service, and most of the activities of data center staff in the future will be geared toward meeting those demands. Typical functions will include monitoring and maintaining service delivery levels; providing appropriate user interfaces; managing physical databases and communications environments; and training users in the use of hardware and automated end-user computing tools.

The way these functions sort themselves out will be roughly as follows:

Computer Operations, as we know it today, will become highly specialized, with functions that relate specifically to direct operation of computing resources. Direct Operations will continue to be the core of the data center, with responsibility for hands-on operational activities such as console operations, tape handling, I/O, job scheduling and micrographics.

Maintaining the operational capability of Direct Operations will be the job of Operations Support. This area will perform many of the activities that now tend to distract Direct Operations from its main mission — network control, physical database management, resource accounting and configuration management, user Help Desk services, performance change and problem management.

Technical Services will continue to focus on installing and applying fixes but will assume added responsibilities. These will include jobs such as management of installed data and telecom equipment environments, network support and access methods and support for the growing base of end-user software resident in both the data center and Information Centers.

Management of the data center will also evolve to include a critical planning component, with far-reaching implications for information technology usage across organizations. This function, if it is given the proper support and authority, should be invaluable in ensuring the alignment of computing resources with business goals and directions. Ultimately, the Management and Planning area will be responsible for transforming the data center into a provider of computing power and service to organizations.

Finally, there must be an Administrative Services Group to provide the largely generic administrative and clerical functions that will be required — data center administration, vendor relationships, documentation libraries and so on.

#### Human resources needed

Unfortunately, not many companies currently have adequate formalized human resources management programs for the data center. And, if they are not equipped to meet current needs, they certainly will not be prepared to tackle the much larger planning issue of minimizing the negative impacts of change and transformation on this scale.

Information systems managers must take a number of actions to stave off long-term problems in data centers. These include the following tasks:

- Providing the right environment and tools to foster rapid staff development.
- Formulating a clear definition of how job functions will change and what skills will be needed to perform the new tasks.
- Developing training programs that will make it possible for data center staff to acquire the skills they need to remain viable and contributing members of the organization.
- Creating a succession management program that will both protect the center against disruption in critical service functions and serve as a baseline for the development of clear career tracks for data center staff.

With functions in the computer center becoming highly specialized, it will no longer be possible to shuffle staff in an arbitrary fashion. The evolution of computer centers and organizational computing will stall if trained computer personnel are not on board and adequately equipped.

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# Data centers face relative deprivation

BY GARY ROBINS

Data center budgets will continue to move in an upward direction, but total corporate spending on technology, both inside and outside the MIS organization, will increase at a greater rate.

That is the projection of Douglas Brockway, a principal at Nolan, Norton & Co. in Lexington, Mass., who maintains a database of personnel, equipment, and software costs in more than 200 large-

Robin is a free-lance writer based in Northfield, Minn.

scale data centers.

According to Brockway, there are two reasons for the slowing of data center outlays relative to corporate expenditures on personnel, interactive and networked technologies.

First, the unit cost of the total amount of work being done by data centers is declining. Brockway, who defines the unit cost of work in terms of units of consumed processor power, or millions of instruction per second, says that unit costs within his sample are dropping at an average of 20% a year; the decrease is estimated at about 10% to 15% a year for larger

data centers.

A second factor is that even greater economies are being achieved with personnel in data centers. "The head count required to support a unit of work in the data center is going down even faster than unit costs," Brockway observes.

A smaller increase is a far cry from an actual drop, however. Even though the boom may have passed, in 98% of the data centers that Brockway follows, "budgets are still rising in raw dollars" and he does not expect the figures to suddenly turn negative.

One stabilizing factor is that the whirl-

wind activity going on outside the data center actually creates additional work inside the area. Users must be connected to mainframes; files must be accessed, supplied and maintained. "I think of the data center as providing a product to a marketplace," Brockway says, "and the marketplace demand keeps going up."

## Local alternatives

Why bring new work to the data center when local alternatives exist? According to Brockway, as the unit costs drop, the data center becomes a more attractive alternative for users. Rather than run an application on a departmental system, users find the cost of data center computing increasingly less expensive. There is also a clear trend to use the data center as an "unlimited" repository for data.

As the market grows, the effect is to accelerate system turnover in data centers as applications start to require significantly more virtual storage, relational capabilities and communications features.

Experts say data centers will be spend-

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# IN DEPTH

## Tracking IBM's gateways

*Which strategy will prevail in tomorrow's Token-Ring networks?*

BY ZAK KONG

**F**or MIS managers implementing LAN-to-host gateways, predicting which of IBM's major gateway directions will emerge as the industry standard is crucial. Will IBM's future product strategies emphasize one local-area network gateway alternative over another? Or will the industry leader continue to offer the two solutions it does today?

The answer lies in IBM's recent announcement and current promise of several new products, which should greatly affect the future direction of the IBM Token-Ring LAN as well as its connectivity to IBM's Systems Network Architecture (SNA) host resources.

In a November rollout, IBM announced a high-speed 16M bit/sec. version of the Token-Ring network. And expected soon is a new model of the IBM 3174 cluster controller featuring enhanced Token-Ring gateway capabilities.

On the surface, these product enhancements indicate that IBM's preferred Token-Ring gateway solution will center around the 3174, which has emerged as a very strategic product for IBM, especially in the area of Token-Ring gateways. But IBM also offers a

capable Token-Ring gateway implementation that uses a PC as the link. And the vast majority of third-party Token-Ring gateways on today's market use a PC, not a 3174, as the gateway.

### Some old story

Tracking IBM's product directions has always been difficult. The company never seems to offer just one way to solve a particular application: multiple solutions are a way of life at IBM.

In fact, market research there sometimes means announcing several products and then seeing which alternative —

or alternatives — are embraced by the marketplace. Products that do not catch on are simply downplayed or, in some cases, discontinued altogether. Witness the PCjr.

Or consider IBM's first LAN for personal computers — a broadband network that utilized a bus topology. Called the PC Network, it was not a huge success by IBM standards.

IBM's first serious LAN offering, most analysts agree, was its Token-Ring network. The Token-Ring incorporates a baseband ring topology and a token-passing access method.

At the time of its announcement, Token-Ring was a radical departure from the then-reigning de facto standard, Ethernet, which utilizes a bus topology and the carrier-sense multiple access with collision detection (CSMA/CD) access method.

Today, however, the Token-Ring has emerged as the LAN of choice for PC-oriented LAN implementations. According to La Jolla, Calif., market research firm Computer Intelligence, Token-Ring has a larger installed base than Ethernet in those installations interconnecting PCs only. In this segment, Token-

Ring has a 38% share while Ethernet has a 35% share. Clearly, then, determining the gateway choice for a Token-Ring network is extremely important.

A LAN gateway consists of a hardware/software module attached to the LAN that provides a shared communications path to the host mainframe. All nodes on the network can use the gateway to communicate with the host. This provides a cost-effective solution, because each node does not have to have its own separate communications link.

Of IBM's two current solutions for Token-Ring host gateway connections, the first approach uses a designated PC on the Token-Ring, which functions as the gateway. This "gateway PC" communicates with the other "workstation PCs" via IBM's Network Basic I/O System (Netbios) interface.

The second approach, in addition to



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using the 3174 controller, can also use a number of other hardware products — for example, a 3725 or 3745 front-end processor, or an IBM Application System/400 — as the physical gateway. In these scenarios, the IEEE 802.2 protocol is used in place of Netbios.

While quite different in implementation, both of these gateway approaches rely on IBM's PC 3270 Version 2 emulation software to achieve 3270 communications functionality. The software is just configured differently, depending on the gateway. To ensure future compatibility, however, a clear gateway choice must emerge.

Before addressing that issue, it is important to take a closer look at the standards and technologies involved.

The Institute of Electrical and Electronics Engineers, Inc.'s 802 committee has produced a number of standards relating to LANs: 802.1, 802.2, 802.3, 802.4 and 802.5.

The 802.1 and 802.2 standards are high-level layers that apply to all 802 implementations. 802.3 through 802.5 layers are concerned with defining the LAN media-access method. The 802.3 standard defines Ethernet (CSMA/CD), 802.4 defines Token-Bus and is used almost exclusively in manufacturing environments as defined by the Manufacturing Application Protocol standard, and 802.5 defines Token-Ring.

Another industry standard that is very important to the PC-based LAN marketplace, although not an 802 standard, is Netbios. It was developed as an extension to the IBM PC's BIOS firmware. In a sense, Netbios can be viewed as a high-level alternative to the 802.1 layer.

Netbios has emerged as a de facto standard for PC-only LANs and is supported by many third-party LAN vendors on LANs other than IBM's Token-Ring. It has allowed a wide variety of LAN-based applications such as host communications gateways and database systems to emerge. And although IBM's OS/2 Extended Edition and LU6.2 will probably emerge as the new standards in this area, Netbios-based applications will probably continue to play a major role. In fact, the OS/2 LAN Manager from Microsoft Corp. will be fully compatible with Netbios.

#### The gateway alternatives

The first gateway approach IBM offers uses a PC as the gateway, which is a dedicated PC on the Token-Ring acts as the gateway. It is equipped with a Token-Ring adapter board on the downstream link and a separate communications board for the upstream host connection. This methodology is shown in the top half of the chart above. The Netbios interface is used for communications between the gateway

PC and the workstation PCs.

With such a gateway PC approach, the gateway PC itself is recognized as an SNA Physical Unit (PU). Each of the workstation PCs on the Token-Ring is designated as a Logical Unit (LU) only, not a PU. Hence, it can be said that SNA stops at the gateway PC.

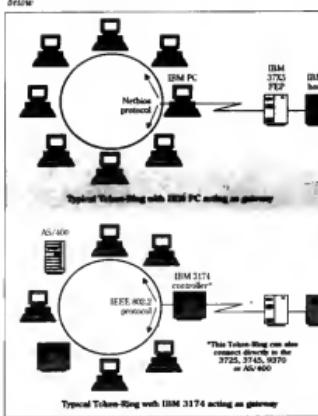
The second type of PC gateway is the most prevalent on the market today. In addition to IBM, several third-party vendors have introduced communications gateways of this type. The PC gateway approach is typically used with smaller Token-Ring installations that interconnect PCs exclusively.

On the higher end are larger Token-Ring installations that interconnect a wide variety of IBM equipment — for example, PCs, minicomputers and controllers — encompassing hundreds or thousands of nodes. In this case, IBM's second approach often comes into play.

This technique literally extends SNA onto the Token-Ring down to the individual LAN node level. Here, each communications node is a workstation developed to support the IEEE 802.2 protocol. The second approach does not use a PC as the physical gateway. Rather, it involves directly attaching the Token-Ring to one of the following IBM hardware products: a 3174 cluster controller, a 3725 or 3745 front-end processor or an AS/400 or 9370 mid-size computer. IBM's Token-Ring Interface Card (TIC) is used to achieve the physical connection to the Token-Ring.

The lower half of the chart above illustrates the second type

of gateway, in which an IBM 3174 functions as the physical gateway link to the host.



of gateway, in which an IBM 3174 functions as the physical gateway link to the host.

To propagate SNA all the way across this Token-Ring, a much finer level of control is required than can be exercised via Netbios. Therefore, the lower level 802.2 protocol is used.

Netbios is a higher level specification than 802.2 and as such is more user-friendly and provides global-type functions.

Therefore, it has emerged as the implementation of choice for most third-party gateway suppliers.

IEEE 802.2, on the other hand, is lower level, which means it is more complicated to work with but provides a much more detailed level of control.

But the two standards are not mutually exclusive. Simultaneous 802.2 and Netbios communications can occur on the

same Token-Ring, although the gateway will still be different.

Having clarified IBM's two LAN gateway approaches, it is also important to understand how three key IBM concepts — the 3174 controller, the Systems Application Architecture (SAA) and Netview — fit into the picture.

#### The 3174 controller

The 3174 cluster controller has emerged as a strategic product for IBM, not only for 3270 coaxial applications, but also for the Token-Ring gateway.

Of all the hardware that can be used for an 802.2 Token-Ring gateway, the 3174 is the least expensive and therefore will perhaps emerge as the most used product for 802.2 gateways.

From a connectivity standpoint, the 3174 has two sides: the upstream connection and the downstream connection.

The upstream connection can be a host channel attachment, a Synchronous Data Link Control host link or another Token-Ring. Assuming that the downstream connection is to a Token-Ring, then an interconnection link to a host makes the 3174 act as a LAN-to-host gateway. An upstream connection to another Token-Ring makes the 3174 act as a LAN-to-LAN bridge.

The downstream connection can be coaxial or Token-Ring. Coax allows the 3174 to function in its historical 3270 coaxial controller mode. Token-Ring is achieved through the use of the TIC. For downstream connections, the 3174 can retain all its protocol implementation functionality within itself, or else

In this  
business,  
there's one  
coattail  
we're proud  
to be  
riding on.

some of the control can be delegated to downstream devices.

Distributed protocol implementation in this fashion is made possible by a facility called Distributed Function Terminal (DFT). With DFT, attached PCs can communicate with a host using the 3270 protocol and a variety of other SNA protocols. Once the controller goes on-line with the host, all SNA request units are passed through the passive controller and then processed by the terminal device. The DFT acknowledges that the terminal device has built-in intelligence.

DFT allows PCs to communicate via advanced protocols such as LU6.2/Advanced Program-to-Program Communications (APPC) by using native application software. It allows multiple concurrent host windows. It also opens up the controller link to accommodate other future directions, because DFT assigns the workstation complete control over what data-stream control characters it can handle.

Note that the facility allows the workstation, not the 3174, to determine the LU type. This means that workstations can be attached to communicate in ways never originally designed into the older 3274 controller, the 3174's predecessor. The latest 3174 specification is that the new model will be DFT-only.

**SAA**  
In creating SAA, IBM established a common blueprint for host communications, defining

how different types of users and computing equipment would communicate. In 1986, IBM set an even bigger goal. Faced with competition like Digital Equipment Corp. that had managed to keep their computer lines relatively application-compatible, IBM began publishing its SAA, a set of generic specifications designed to define not only computer communications but all computer applications.

At the core of SAA is the premise that software should be portable from one hardware en-

vironment to another without modification. Ultimately, although it is far from implementation — a program for an IBM 3080- or 3090-class mainframe should run on a Personal System/2 micro and vice versa.

SAA's specifications also define a new level of advanced data processing, namely, cooperative processing.

Based on the much publicized LU6.2/APPC, cooperative processing distributes processing loads among different-sized computers within the network, while allowing the systems to talk to each other directly at the operating system level without the need for terminal emulation.

In terms of PC-to-host links, LU6.2/APPC includes the ability to design a very high level of in-

tegration between the PC and the host. A PC program can exchange information with the host by updating or extracting only those elements that are needed, thereby not necessarily requiring complete file transfers. This integration will greatly reduce line costs in many LAN-to-host applications.

#### Netview

Centralized network management has become an increasingly important concern among those responsible for the management and control of local- and wide-area networks. And while network management tools may not be critical considerations for those implementing a small, 20-node Token-Ring application, for example, they become imperative for the setup and configuration of 802.2 Token-Ring networks that may span upwards of 4,000 to 5,000 nodes.

Netview is IBM's strategic product for network management. Originally announced in May 1986, its first release simply consolidated several existing IBM host-based software tools for network monitoring.

In September, IBM announced Version 3 of Netview, adding functions and making the software easier to use. Netview has now emerged as a powerful system for centrally controlling and managing multiple or interconnected SNA networks.

DP and communications managers use Netview for a variety of tasks, including tracking and

controlling terminal usage, identifying and reporting hardware problems, testing modems and collecting data on specific network resources. Like SNA and Token-Ring, Netview is rapidly becoming a de facto standard within the industry.

In a LAN environment, it is interesting to note that the product can only manage Systems Control Point-to-PU sessions. This means that Netview can keep track of SNA PU devices only, not LUs. Therefore, in a Token-Ring using a PC as a gateway, Netview can only determine the physical location of the gateway PC, which represents the PU. If individual workstation PCs are moved within the Token-Ring, Netview has no way of tracking them, because each node PC represents an LU, not a PU.

In an 802.2 Token-Ring in which each PC has its own PU address, Netview provides complete control over each workstation PC. If a workstation PC is physically moved, Netview can determine its new location. This is a major improvement in which network management has the responsibility of keeping track of thousands of PCs.

#### IBM's direction

IBM derives most of its revenue from mainframe products, not PCs. Therefore, many industry observers agree that IBM's overriding product strategy has always been to overload the mainframe. By so doing, IBM is able to sell highly profitable mainframe enhancements.

But how does IBM's strategy translate to the LAN gateway

marketplace? A case could easily be argued that IBM will drive the market toward 802.2 Token-Ring gateways using hardware like the 3174.

With the centralized Netview control of an 802.2 Token-Ring, growing and expanding network applications is a more manageable undertaking. And the more applications you add, the more revenue IBM can generate, which implies an IBM strategy of overlooking the mainframe and thereby recovering profitable host upgrades and enhancements.

IBM clearly understands centralized control. So do corporate MIS managers who have long lived in the world of centralized control and tend to view the world from the host's point of view. PC vendors, on the other hand, tend to view the world from the PC side, in which decentralization seems more desirable.

This scenario seems to indicate that while PC vendors attempt to drive the market toward PC-based Netbus gateway solutions, IBM's mainframe-oriented IBM would benefit by driving the market toward centrally controlled Token-Ring implementations with 802.2 gateways.

Further, the previous version of IBM's Token-Ring ran at 4 M bit/sec., while the new version

**N** EVER underestimate the unpredictability of the Armonk giant. IBM may, in fact, push Netbus solutions.

It has been rumored that, if it is indeed upgraded, the new 3174 will support both the 4 M bit/sec. and 16 M bit/sec. Token-Ring networks and will therefore be able to act as a LAN bridge between the two, in addition to its LAN gateway functionality. The enhanced controller should also include more intelligence and larger memory capacities, allowing it to become a more complete SNA node, with added routing and network control functions.

True, these product enhancements would seem to provide additional credence to the theory that IBM will be moving the market toward 802.2 Token-Ring gateway implementations involving distributed functionality, 3174 gateway and centralized Netview control.

But that scenario may be wrong. Never underestimate the unpredictability of the Armonk giant. IBM may, in fact, push Netbus solutions. While waiting for a further sign, MIS and communications managers will have to base today's implementation decisions on the knowledge currently at hand. \*

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# COMPUTERWORLD

# MANAGEMENT

## TAKING CHARGE

James Young

### What more can MIS do?



Though we may have become used to them, the boundaries of MIS responsibility are by no means stationary.

Traditional roles of analysis and programming are being challenged by non-MIS groups. There are also the well-publicized battlegrounds of end-user computing and departmental computing. These encounters are perceived as being of profound importance and are usually settled based on strategic issues or at least in a considered way.

There are, however, other demarcation discussions that get less attention and are not blessed with such thoughtful evaluation. These usually involve companywide ancillary responsibilities for which MIS may provide a suitable home and can include the mail room, company print shop, telephones and office service duties.

Pairing such bits and pieces with MIS can prove to be more important to MIS than we might at first think. On the positive

Continued on page 88

## Export's about-face

Automation wins accolades for maligned bureau

BY MITCH BETTS  
CW STAFF

Three years ago, the U.S. Department of Commerce was doing such a poor job of processing export licenses — most took 46 days, and some applications were lost not once but three times in a row — that critics said the job should be handed over to the Postagemen.

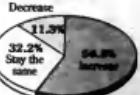
"But I'm a competitive sort of a bitch, and I didn't want to give away something like that," says Lee Mercer, who was hired by the department as deputy under-secretary for export administration to revamp the operation and oversee automation of its realms of paperwork.

### Data View

Budgets stable or growing

*The vast majority of 150 MIS executives surveyed indicated that their 1989 budgets would not start below 1988 levels.*

PERCENT OF RESPONDENTS



SOURCE: THE SIERRA GROUP INC.  
CW CHART: DOROTHY DAWHILL

What Mercer and John Young, director of information resources management (IRM) at the Bureau of Export Administration, did was to turn the department's black eye into a Gold Medal Award for several successful automation projects. Today, the department processes export licenses within five to 14 days, and none fall through the cracks.

The bureau's job is to review export applications for export licenses, determine if they must export-control regulations prevent the diversion of high-technology products to the Soviet bloc and issue the approved licenses as quickly as possible. It issues about 100,000 licenses a year, representing \$10 billion in sales by U.S. companies, or roughly 35% of U.S. merchandise exports.

Presenting the Gold Medal Award to the IRM staff in October, Commerce department executives praised the electronic-licensing system as the envy of U.S. trading partners — Japan, Germany and the UK are copying the bureau's system — and for helping to speed U.S. exports to foreign markets.

**Brickbust heating**  
That praise is a far cry from the brickbusts hurled at the department a few years ago.

"Some people told me I shouldn't take the job," Mercer says, "because the unit had such

### PROFILE

John Young and Lee Mercer



JOHN YOUNG AND LEE MERCER

**John Young (left) — Director of information resources management, Mercer — Deputy under-secretary of export administration, U.S. Bureau of Export Administration.**

**Philosophical Young — Recruit influential "change agents" in the user organization to promote automation, Mercer — Automation projects need decisive leadership from the top**

a poor reputation. And some people told me that John Young's group did not have the capacity to automate the system."

Actually, in 1984, Young had drafted a visionary plan for computerizing the paper-intensive process, but he lacked the political clout to get it moving. A few years later, that clout was provided by Mercer, who was described as "one bureau source as 'a tough guy' in a situation that needed a tough guy."

"What I added to this equation is importation and support from the top," Mercer says. "Without the support of top management people, who have a view of where they want the organization to go, the IRM will run into

the natural roadblocks of everybody defending their turf."

For example, in order to forge agreements between the users and the IRM office, Mercer decided to chair the steering group and require users to send a representative to every meeting because key decisions would be made at these gatherings.

No one claimed that automating the process of export licensing would be easy. Young says there were five different main concerns from the early 1970s to 1983, and all concluded that it was impossible to automate 100% of the process.

The key to success, Young and Mercer agreed, was to try to

Continued on page 89

## Former quarterback Tarkenton's advice for building winning management team

BY DAVID A. LUDLUM  
CW STAFF

**ATLANTA** — Taking the field for the Super Bowl may seem far removed from the realm of managing information systems, but one person familiar with both worlds contends that some principles contribute to success or failure in either.

That is the view of Fran Tarkenton, who three times stood in the spotlight shared by yesterday's Super Bowl quarterbacks on his way to National Football League career records for completed passes, passing yards and touchdown passes. Along the way, he also started a management consulting firm, Tarkenton & Co., Inc., now 19 years old and employing 25 professionals.

Tarkenton credits notions about managing people for much of his gridiron success and says the same principles make businesses work better.

Tarkenton, 48, who is also chief executive officer of Knowledgebase, Inc., a vendor of software development tools, says MIS organizations in particular need to improve their management of people. "In data processing, we are behind in that regard," he said in addressing the Society for Information Management's (SIM) annual conference.

Tarkenton devotes most of his attention to Knowledgebase, but his counsel to MIS managers dwells on managing people. In an interview, two books and speeches to groups including the

SIM and Data Processing Management Association, Tarkenton discounts management by objective. They are valuable, he says, but are not as critical as managing people effectively, which requires teamwork, accountability and feedback.

He acknowledges these bromides are not new, but he emphasizes the need to implement the ideas. A one-time television host, Tarkenton draws laughs rather than yawns in imparting the message to handshaking conference-goers by pepper it with relevant anecdotes from his football career. He drives home points in the \$15,000 talks with a rhythmic delivery and hushed tones suggesting his upbringing

is the son of a Pentecostal preacher in Athens, Ga.

"Technology," he told the SIM members, "only helps us in data processing or [manufacturing] plants when people buy it and use it. That is technology. We have to learn the ability to deal with people in dealing with management change."

People resist change from uncertainty over how it will affect their status and security, Tarkenton says. But leaders can get workers to buy into change by bringing them into the process — listening, understanding how the change will affect them and making them part of a team.

Building teams also helps bring out workers' ideas, and Tarkenton attributes his reputation as a crafty play-caller to tak-



Tarkenton at old

ing advice from teammates.

Ray Ali, a consultant at United International Corp. in New Canaan, Conn., who arranged a talk between Tarkenton, relates such notions about teamwork to developing systems.

Continued on page 89

## Young

CONTINUED FROM PAGE 87

live side, they can complement an MIS service operation, build economic and management synergies and exhibit MIS skills. On the other hand, they threaten to distract our attention, waste our energy and cast a mean reflection on the department. Therefore, despite the lack of traditional attention toward these areas, MIS should take an interest in the question of whether they belong under MIS.

### The organizationally overlooked

This is not to say that MIS is in a position to engineer the acquisition of additional duties. These interests tend to be small but have a tradition of being independent. Control of these functions is largely uncontested, and therefore they may be very comfortable in some organizational niche. Since they are small, the rest of the company perceives them as relatively unimportant.

It is during these periods of customer dissatisfaction that realignment becomes popular. It is also when the firm considers the merits of MIS assuming new duties, and MIS must be ready to handle them when drafted. In addition, MIS must recognize and then fend off inappropriate assignments. This process of introspective analysis is a therapeutic exercise and may uncover affinities that MIS may have with selected areas.

Usually, MIS will see no reason to take on other functions. MIS should get into front-line selling isolated pockets of service activities as potential trophies in the MIS field. MIS should not be given activities that we have no business trying to manage. With this judicious attitude, the few occasions calling for organizational combination will stand out on their own merits. The following guiding principles may show whether it is wise to adopt any new duties through realignment:

- **Priority.** Any new duty must pass the importance test. Is the task critical enough to commandeer precious MIS time and resources? Is it more important than those things that MIS will now not be able to get to? Is this how top management would invest MIS resources?

- **Integration.** One obvious reason for MIS's assumption of an organizational responsibility is the merging of technologies. For example, when integration of finance and data communications makes functional or financial telephone operations are likely to join MIS. This union allows one group to manage changes in technology and customer service. Boundary disputes are eliminated by eliminating the boundaries.

- **Transition.** As one technology supplants another, the transition can be smooth if it is all contained under one roof. Facsimile devices have gone from being mail-room equipment to group or personal devices and eventually will become just another facet of personal computing. If one group such as MIS were to oversee this maturation of a technical application, change could be supported selectively or even encouraged. MIS can be a better agent for change if it has the full spectrum of responsibilities over an application area such as copiers.

- **Technical skills.** Even when no change in technology is contemplated, MIS can bring skills to an organizational marriage when other groups are using

technology that they have no tradition in handling. Word processing equipment is an example of technology that other groups tried to deploy. MIS not only can implement and maintain the hardware and software but can be more technically circumspect in selecting products. While our ability to communicate with top executives could stand improvement, it would still be a positive addition to many disenchanted units in our companies. Even functions seemingly unrelated to MIS — such as copying facilities management, security and courier services — could benefit from the pure service management of MIS.

• **Management.** You know that we have come a long way when you cite our management skills as a reason to combine another group with MIS. Yet, we have also built considerable talents that would enhance any service operation. Over the years, MIS has developed a compulsion for reliable, quality service.

Service-level negotiation with users is a discipline that MIS pioneered. Cost/benefit analysis, vendor management and cost containment are all activities with which MIS has extensive experience. While our ability to communicate with top executives could stand improvement, it would still be a positive addition to many disenchanted units in our companies. Even functions seemingly unrelated to MIS — such as copying facilities management, security and courier services — could benefit from the pure service management of MIS.

These strengths might make it sound as if MIS is the right organizational companion for everyone. Nothing is further from the truth. Organizational realignment with MIS must have compelling

reasons before redirecting precious MIS time and attention to it. Beware of and when the stupid reasons for combining units, such as "no one else wants it" or "This will be organizationally convenient."

MIS cannot be a home for outcasts and misfits and still perform its primary mission. If we can offer improvements and a move makes sense, then we should aggressively assume new responsibilities. But MIS should heed the admonition of signs that once hung in army mess halls: "Take all you want, but eat all you take."

Young is managing director of MIS at the Wheeler Group, a division of Pitney Bowes, Inc. in Hartford, Conn.

## Why give them mainframe "power" when you can give them a real mainframe?

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# UN

## About-face

CONTINUED FROM PAGE 87

make incremental progress anyway." Automating the entire process probably is impossible, but you can get 50% of it very quickly, then 70%, then 90%, with not a lot of expense or risk," Young says.

The fundamental problem was that the bureau handled 20 million pieces of paper a year, Young says. Despite the inefficiencies, it was hard to wean the paper-handlers away from the paper.

What did the trick, the IRM director says, was to provide a small group of users with workstations and give them lots of special attention. Once the others were able to see the value of the new gadgets,

they wanted some, too.

Rather than an organizationwide mandate, "you need to get change agents out into that users group who will preach your philosophy," Young concludes.

### Driven designer

Young also gives credit to IRM staff member Jack Floyd, who designed the computer system and was described as a man "driven to fix the export licensing process."

The result is the Export Control Automated Support System, an on-line system for licensing officers that runs on an IBM 3081. The bureau has also developed the following ancillary systems:

- The Electronic License Application and Information Network, which allows ex-

porters to submit their applications, and receive approvals and licences via value-added networks.

- The Licensing Officer Access System, providing access to 15 million records on past and present applications to help them make faster and more consistent licensing decisions.

- A 32-station, local-area network for office automation applications.

- System for Tracking Export License Applications, or STELA, a computerized

voice-response system that allows exporters to check on the status of their license using a Touch-Tone telephone. Exporters tap in the number of the application and hear a synthesized voice that states exactly where an application is in the process and how long it has been there.

STELA was a simple yet elegant response to a big political problem. Previously, exporters had so much trouble determining the status of their applications that they resorted to calling the man at the top, then-secretary Malcolm Bradige, who in turn ordered his staff to find the answers.

### Desperately seeking export

Baldridge reportedly got 20 calls a week from desperate exporters, Young says, recalling that former IBM Chairman John Opel called Baldridge every three weeks, and one executive claimed Baldridge down during a European vacation.

STELA was one of the ideas in Young's 1984 strategic plan that had stalled. "Lee Mercer got a lot of advice on STELA: 'Don't turn it on, it's too early' and 'It's going to fail.' He looked at it, said it will work and gave the signal to go" in May 1986, Young says. STELA was operating in October of that year and has been very popular inside and outside of the agency, he adds.

Young says the STELA episode illustrates the importance of decisive action, fast timetables and top-management support.

"The best thing about it all is that the same people who were told three years ago that they didn't have the capacity to do the job — well, they did the job," Mercer concludes.

"I gave them a chance to implement their ideas, I helped with some guidance, and, where necessary, I threw some cross-body blocks to protect them," he says.

## Tarkenton

CONTINUED FROM PAGE 87

Managers have to call a "play" and get developers to follow it, Ahi says. "In developing a major system, people often go in different directions. They have to be part of the play. If they go in different directions, the project won't work."

Tarkenton says employees also need accountability, "some kind of a score-keeping system," as athletes have a score and statistics. Along with providing feedback, scorekeeping can make work more fun, he says.

Tarkenton says reinforcement should be meaningful, timely and specific — as in a manager complimenting a program or on particular lines of code — and it should mix constructive criticism with a good deal of positive reinforcement. He promotes incentive-based compensation to get employees emotionally involved in work.

Taking risks is another key to success in business and football, Tarkenton says, noting that he also holds the NFL career record for throwing intercepted passes.

What about failure? Tarkenton's biggest one, in the view of some observers, is his failure to lead the Minnesota Vikings to a Super Bowl win in his three tries. He says that while the losses are a huge disappointment, he does not let them overwhelm him.

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## MANAGEMENT BRIEFS

## Industry standouts garner gold

Steele, Bradshaw, DeFanti to receive ACM awards at annual conference

The Association for Computing Machinery (ACM) last week identified the award winners who will be honored at the annual ACM Computer Science Conference in Louisville, Ky., February 21-23.

Guy L. Steele, senior scientist at Thinking Machines Corp., was named recipient of the ACM Grace Murray Hopper Award, which was established in 1971 to recognize persons who have made outstanding technical contributions to the computer industry while 30 years of age or younger.

Steele will be honored for his general contributions to the development of higher order symbolic programming, principally his advancement of lexical scoping in LISP.

The ACM also announced that Charles L. Bradshaw, chairman of the computer science department at Mississippi State University, will receive the ACM Distinguished Service Award. Bradshaw will be honored for his 35 years of contributions to the government, education

and professional computing community. Prior to joining Mississippi State, Bradshaw was active in computing at Oak Ridge National Laboratory, the National Aeronautics and Space Administration Marshall Space Flight Center and Vanderbilt University.

Thomas A. DeFanti, director of the electronic visualization laboratory at the University of Illinois at Chicago, will receive the ACM Outstanding Contribution Award. DeFanti was cited for organizing the ACM *Signgraph Video Review* and for his influence on teaching computer graphics.

Citing the growing importance of electronic data interchange (EDI), the Association for Systems Management recently added an EDI-related offering, "Principles of EDI: A guide to the Potential of a Future Competitive Necessity," to its course schedule. The two-day course will be offered throughout the U.S. and was designed to provide nontechnically oriented

business people with an understanding of EDI.

A users group for devotees of the "information engineering" methodology for systems development was formed early this month by James Martin Associates, Inc. in Reston, Va. The Information Engineering Users' Group was created for corporate information executives who use supporting computer-aided software engineering tools and information engineering techniques.

The first meeting was held last week in Teterboro, N.J. and featured a presentation by Scan-Lab Corp. in Elizabeth, N.J., on its experiences with the information engineering process. For information, call William Shels at 201-326-9558.

The recently formed International DB2 Users Group has announced its board of directors. The group named William Backus from Scott, Foresman and Co. in Glenview, Ill., as president.

## CALENDAR

JAN 22-28

Conference on Network Management, San Diego, Jan. 23-25 — Contact: Frost & Sullivan, 100 Folsom St., New York, N.Y. 10036.

Document Processing and Optical Disc Systems Conference, Phoenix, Jan. 23-25 — Contact: CAP International, One Longmeadow Circle, Norwell, Mass. 02061.

Hardware on IBM and the New Open Market, Denver, Jan. 23-25 — Contact: Technology Transfer Institute, 741 Tech St., Suite 2000, Menlo Park, Calif. 94025.

Middle East Broadcast Communications News, Moscow, Bahrain, Jan. 23-25 — Contact: Epsilon Associates, Five Maple Court, Ridgewood, N.J. 07657.

Conference on Improving Productivity in IBM Systems, Phoenix, Jan. 23-26 — Contact: Applied Computer Research, P.O. Box 9500, Phoenix, Ariz. 85064.

Improving Productivity in IBM Systems, Phoenix, Jan. 23-27 — Contact: Applied Computer Research, P.O. Box 9500, Phoenix, Ariz. 85064.

Computers and Reading/Learning: IBM Studies Conference, San Jose, Jan. 26-28 — Contact: Educational Computer Research, 10700 Cowan West Way, Richardson, Calif. 94603.

Assessing International Trade

Standards on IBM's Systems Applications Virus Attack, Arlington, Va. Jan. 30-31 — Contact: United Communications Group, Suite 7000, 4555 Montgomery Ave., Bethesda, Md. 20814.

Presenting and Controlling Computer Virus Attacks, Arlington, Va. Jan. 30-31 — Contact: United Communications Group, Suite 7000, 4555 Montgomery Ave., Bethesda, Md. 20814.

Mobile Satellite Conference, San Diego, Jan. 30-Feb. 2 — Contact: Umts Association Conference Board, P.O. Box 395, Sunset Beach, Calif. 90743.

IBM/Apple '89, San Francisco, Jan. 31-Feb. 2 — Contact: NDW Enterprises, Inc. 204, 3895 S. San Antonio Road, Los Altos, Calif. 94023.

Information International Trade Show for Telecommunications Products, San Jose, Calif. 95141 — Contact: The International Trade Facilitation Council, Suite 250, 3550 Spring St., P.O. Box 25001.

Assessing International Trade Transactions Forum, San Jose, Calif., Feb. 2 — Contact: NCITD-The International Trade Facilitation Council, Suite 205, 3550 Spring St., P.O. Box 25001.

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# COMPUTER INDUSTRY

## INDUSTRY INSIGHT

Clinton Wilder

### Bye, bye to American pie?

  
U.S. computer vendors plotting their strategies for the unified European market in 1992 had better be doing on this side of the Atlantic.

Two weeks ago, National Semiconductor sold 50% of its ownership in National Advanced Systems to Memorex Telex — a firm that grew up in the U.S. but now has the curious hybrid of American top management, Dutch investors and a British computer headquarters. Despite the obvious point that we're talking about CPUs made by Hitachi, the deal had the very familiar ring of recent acquisitions by two other U.S. mainframe makers — Honeywell and IBM.

Honeywell is now down to a less than 20% interest in the computer business. It gives every indication that it is thinking the sooner it can get out completely and turn the business over to France's Bull, the better.

IBM, while strongly insisting

*Continued on page 97*

### Strife hits industry in fourth quarter

BY NELL MARGOLIS  
CWT STAFF

Intense competition and increasingly demanding and sophisticated buyers have combined to create an era of intolerance in the computer industry. And companies from venerable NCR Corp. to entrepreneurial Apple Computer, Inc. are paying the price.

Traditionally one of the industry's reliable slow and steady gainers, NCR attributed its fourth-quarter stumble to declining domestic orders. Moreover, the firm cautioned that falloff in second- and third-quarter year-to-year orders bodes badly for overall growth prospects in the first half of 1989.

Domestic sluggishness did indeed impact NCR, said William Eastbrook, an analyst at Kidder, Peabody & Co. To that extent, he said, the bad news is not surprising. Still, he said, NCR's U.S. performance was a recurring refrain in computer company earnings reports for the December quarter.

However, Eastbrook said, "NCR's orders were soft because they haven't had any blockbuster products in the past six months, and the new products they had, they got out late."

Apple got an object lesson in the meaning of market intolerance when its fourth-quarter

numbers, while impressive, showed a slip in profit margins. The shortage-induced high cost of dynamic random-access memory, said Steven Oswald, an analyst at County Northwest Securities, Inc., contributed to the profit hit along in gross margin. More significantly, Oswald said, were recent increases instituted by Apple last autumn. "That was the real culprit," he said. "The prices were so high that buyers moved to less-rich configurations."

**Curbed by hurt, not help.**  
Hoping to tempt customers back, Apple last week cut some of the earlier increases and decreased the prices of certain configurations for the affected Macintosh computers. Far from being reassured, "Everyone apparently focused on the price cuts and saw them as indicating a slowdown in demand for the Macintosh line," noted Steve Soderstrom, an analyst at A.G. Edwards & Sons. Immediately following the announcement of the earnings report and news of the price rebucks, Apple stock plummeted 3.38 points.

"They got shellacked," said one analyst, calling Apple a strong company "still achieving staggering gains." Other analysts agreed.

Diminishing sales of older products and production delays

#### 1988 fourth-quarter earnings

Wang, Comshare, Tandem gain, and Mascom enters an era of "preludes prosperity"

Advanced Micro Devices	\$348.1	(9%)	(\$34.1)	—
Automatic Data Processing	\$400.5	9%	\$44.1	10%
Apple	\$1.4B	35%	\$140.5	10%
Intel	\$727.3	27%	\$85.8	(10%)
Intellivision	\$6.1	3%	\$0.01	—
Motorola	\$91.4	22%	\$8.8	(8%)
NCR	\$1.0B	(1%)	\$148.0	(7%)
Network Equipment Technologies	\$36.5P	43%	\$6.3	34%
Phoenix Technologies	\$14.6	67%	\$2.9	100%
Spago Technology	\$246.3	2%	\$7.6	(97%)
Software Publishing	\$23.2	65%	\$3.8	50%
Tandem	\$392.3	30%	\$31.3	32%
Tandy	\$1.4B	—	\$136.1	3%
Wang	\$700.7	(9%)	\$1	(97%)

Percentages indicate decreases or losses

Quarterly loss is the unusual charge of \$117.2 million associated with weak license reductions of 2,400 units in December

Reported loss of \$97.2 million in 1987

Income increases computed before an extraordinary credit

CF CHART/JEFFREY TINS

in the new VS 5000 line handed Wang Laboratories, Inc. — and Wall Street — a shocker: earnings down 97% in the December quarter. However, said Jeff Gorwitz, an analyst at Salomon Brothers & Co., "People are more focused on future with Wang."

Orders for the delayed VS

5000 are strong, according to the company, which also said that it already has booked 68 orders for a high-end minicomputer scheduled for announcement

this week.

Fault-tolerant users, on the other hand, delivered a strong quarter to the company that delivered highly demanded fault-tolerant products to them. Comshare Computer, Inc., turned in an impressive fourth-quarter performance, floating several industry clichés in the process. In a period marked by sagging U.S. sales, Comshare logged its second consecutive quarter of year-to-year growth in its domestic com-

*Continued on page 97*

### Ex-Unisys exec joins Northern Telecom

BY NELL MARGOLIS  
CWT STAFF

MISSISSAUGA, Ontario — When it comes to careers in multinational companies, former Unisys Corp. President Paul G. Stern literally wrote the book. Still untitled, it will be published by Warner Books, Inc. Now the 50-year-old veteran executive is about to add a new chapter.

Effective March 1, he will become chief executive officer of computer division giant Northern Telecom, Inc. Stern, who has been serving Northern Telecom as a board member and consultant since last spring, will take on the first chairmanship upon current Chairman Edmund Fitzgerald's planned retirement.

How will the new head of Northern Telecom proceed? "Very carefully and very



fast," he said in an interview last week.

Borrowing a phrase from President George Bush, on

whose campaign finance committee he recently served, Stern said that he intends to stay the course already set for the \$4.9 billion firm, making sure the planned new products are well positioned in an increasingly global market.

Stern's previous corporate stops, before joining the computer industry with former Burroughs Corp., included Du Pont Co., Rockwell International Corp. and Gillette Co.

Stern has also been around Washington, D.C. — another service he expects to turn to his new role as chairman. With respect to both commercial products and defense contracting, he said, "I know how to deal with bids, get contracts, license, things like that."

### Ax falls at National Semi

Long-predicted down cycle in chip market kicks in

BY J. A. SAVAGE  
CWT STAFF

The chips are falling in price and profit margins — and so are 2,000 employees at National Semiconductor Corp.

National Semi announced last week that it will lay off 1,000 employees worldwide, or 5% of its labor force. This follows a layoff of 450 in August in its Data-checker Systems, Inc. and National Advanced Systems (NAS) subsidiaries.

Other U.S. chip giants Intel Corp. and Advanced Micro Devices, Inc. (AMD) reported weaker financial results last week, showing evidence that the long-predicted down cycle in the semiconductor industry is at hand. Although sales may be grow-

ing, lower per-unit prices are pressuring National Semi and the industry, in general to shrill operations, according to Miller Phelps, an analyst at Hambrecht & Quist, Inc.

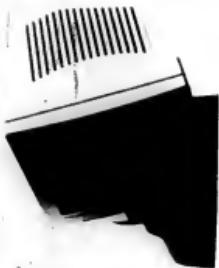
"I expect [National Semi] to save between \$32 million and \$36 million in expenses by the end of its fiscal year," which is March 30, Phelps said.

#### Cash infusion needed

The layoffs and an infusion of cash from the recent sale of its retail systems company, Data-checker, for \$90 million and the sale of half of its mainframe company, NAS, for \$250 million to Memorex Telex N.V. should help National Semi's bottom line.

In the last two quarters, the

*Continued on page 97*



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# NEC

## National Semi

CONTINUED FROM PAGE 93

firm reported a net loss of \$85.7 million.

Despite the massive work force reduction, all 22 National Semi facilities worldwide will remain open, according to a company spokeswoman.

AMD reported a 5% drop in fourth-quarter sales that contributed to a \$34.1 million loss. The loss included a one-time charge of \$17.3 million for the Sunvalle, Calif., firm's restructuring, which included the previously announced layoff of 2,400 employees.

AMD still managed to post a profit of \$19.3 million for the year, a dramatic turnaround from a \$64 million loss in

**A**LTHOUGH SALES may be growing, lower per-unit prices are pressuring National Semi and the industry in general to shrink operations.

1987. After the acquisition of Monolithic Memories, Inc., AMD reported sales of \$11.13 billion, up 13% from 1987.

AMD's loss saw a 20% year-over-year drop, down dramatically in the fourth quarter. In Intel's case, however, it was a matter of stockpiled supply exceeding demand for the 80386 microprocessor, which battered profit margins.

Despite a 27% sales increase to \$727 million, Intel's fourth-quarter earnings fell 10% to \$86 million. For the year,

profits, fueled by strong demand for the single-sourced 80386 early in the year, still grew 43% to \$453 million on revenue of \$9.9 billion, up 51% from 1987.

Bucking the trend, the larger supplier, Texas Instruments, Inc., reported a healthy growth continued in the second fiscal quarter ended Dec. 31. Earnings jumped 41% to \$7.9 million on revenue growth of 68% to \$54.4 million.

*Senior Editor Clinton Wilder contributed to this report.*

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Wed., Feb. 8, 9:30 a.m.-11:00 a.m.

## IN BRIEF

### Atherton snatches Goldberg

Computer-aided software engineering startup Atherton Technology in Sunnyvale, Calif., has snatched IBM veteran Arthur G. Goldberg as its president and chief executive officer. Goldberg, 45, was most recently director of business development at IBM's AIX Systems Project Office. Before his tenure in that department, he was director of workstation systems in the Entry Systems Division. Goldberg is considered to have been a key force behind the recent comeback of IBM's RT workstation.

### Unisys to sell Convex CPU

Convex Computer Corp. has discovered a new distribution channel — Unisys Corp. — in Brazil. In a multiyear agreement, Unisys' Brazilian subsidiary agreed to sell and service Convex minicomputers in Brazil. The agreement marks Convex's entry into the Latin American market.

### Perot gets active again

H. Ross Perot, whose Perot Systems Corp. became a public company in late 1987, has been active on the investment front. Archive Corp., a Costa Mesa, Calif.-based manufacturer of 1/4-in. cartridge tape drives, confirmed last week that Perot, through a private investment group, has agreed to fund technology development at Archive in exchange for rights to purchase approximately one million shares of Archive stock. The actual amount of the Perot investment was not disclosed; Archive stock was trading at roughly \$5 per share last week.

### Unix consolidation

There will be consolidation in the growing niche of Unix systems software with the forthcoming acquisition of Taskforce Software Corp. by AIM Technology for an undisclosed amount. Santa Clara, Calif.-based AIM Technology specializes in Unix performance measurement and management software.

### It's official now

Oracle Corp. and AT&T have finalized the sale of Oracle software on AT&T computer systems with an OEM agreement announced last week. AT&T sales representatives will sell Oracle products with AT&T's entire hardware line. Oracle currently holds similar agreements with other systems manufacturers.



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- Dir. Mktg./Sales, Sales Manager
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- Programmer, Software Analyst
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## Wilder

CONTINUED FROM PAGE 93

ing that its recent R&M move will only strengthen its position in the U.S. private branch exchange (PBX) business, prefers to share that business 50-50 with West Germany's Siemens.

Clearly, the Japanese are not the only ones willing to invest big money for equity stakes in U.S. computer firms. Western Europe's high-technology giants have definitely been on the prowl in the New World recently. Another example is UK giant STC, or British manufacturer ICL, which picked up both Computer Consoles and National Semiconductor's Datachecker point-of-sale business in acquisi-

sitions announced last month.

Most of these deals match businesses that haven't turned out as their U.S. parents had hoped with Europeans willing to ante up for the invaluable U.S. computer industry headcount. In terms of perceived value, an American's drain on the bottom line is a European's golden opportunity to establish or expand its presence in the world's largest computer market.

For the European firms, the message that comes through for '93 is loud and clear — get big and get global. And no one can claim to be global without proof that it can sell West German PBXs in Frankfurt, Ky., or French minicomputers in Paris, Texas.

The computer industry is hardly

alone. In all industries, *Merger & Acquisition* magazine recently reported that Europeans spent \$32.9 billion on 280 U.S. acquisitions last year, compared to only \$3.6 billion worth of European acquisitions by U.S. companies. In 1987, the deficit was even more dramatic: \$37.1 billion from European buyers vs. \$2.4 billion from U.S. acquirors.

Is anyone concerned about this trend? Yes. Two weeks ago, a unit of the Sematech chip industry consortium urged a federal panel to block the sale of Monsanto Electronics Materials, the last major independent U.S. silicon wafer producer, to a West German buyer.

In that industry, with a Japanese market share of 65%, the concern is the U.S. giving up its share of what is left of the

pie to the Europeans.

The implications of massive Japanese investment in the U.S. have been well documented — so much so that it is one of the few substantive issues to receive lip service in the U.S. presidential campaign. But there are competitors across the other oceans who have a very strong motivation to expand quickly in the next three years.

That means plenty of opportunities for U.S. vendors to realize short-term capital boosts thanks to European money. But they should also consider the long-term competitive implications — and so should their customers.

Wilder is *Computerworld's* senior editor, computer industry.

## Strife hits

CONTINUED FROM PAGE 93

puter business, according to President James Treybig.

While some companies have complained of corporate indigestion following large acquisitions, Tandem announced that recent acquiree Ungermann-Bass, Inc. exceeded its expectations.

Magic? Hardly. Tandem's secret, Goverman said, is simple: give the people what they want.

"Tandem is in a high-growth area: OLTP and mission-critical systems," Goverman said. "When Tandem talks to a customer, they go in talking OLTP and fault-tolerance, not 'look at our whizbang technology.' They sell the area, not the machine."

Timely supply to a demanding market also boosted Norwood, Mass.-based Phoenix Technologies Ltd. into a strong quarter. In a prepared statement, Chief Executive Officer Neil Colvin attributed the company's 100% profit surge and 67% rise in revenue to continued strength in sales of IBM Personal Computer compatibles and returns from Phoenix's line of system software products geared to the booming workstation and peripheral markets.

Expedited price erosion is the company's ST-506 and 380M-byte enhanced small device interface and small computer system interface product line, as well as earnings dive-bomb at San Jose, Calif.-based disk drive vendor Maxtor Corp. This fall offset a more than respectable revenue rise and prompted the company to predict shrinking gross margins and depressed earnings potential in the near-term. In a phrase worthy of bullet entry into the oxymoron hall of fame, CEO George Scalise declared that Maxtor is "in a period of profitless prosperity."

Oxymoronic but accurate, County Natwest's Ousad said: Despite the earnings debacle, Maxtor "is still the best-positioned disk drive company in the industry. Their balance sheet is improved, they've shown very rapid growth in new products and they are money."

"The computer industry is in transition, and it isn't clear where the transition is leading," said Martin Resnick, an analyst at Duff & Phelps, Inc. The one sure bet is there are no sure bets any more, he said. "Not only does a company have to have new products and get them out on time, it also has to guess right with regard to what the customer's going to want by the time the company does get them out. That can be the hardest part."



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# COMPUTER CAREERS

## Consultants walk a rough road

Many independent operators falter after the initial assignment

BY ALAN RADDING  
SPECIAL TO CW

  
For MIS professionals confronted with the constraints and uncertainties of corporate consolidations, independent consulting can present an inviting alternative.

In fact, the corporate restructuring is creating a growing demand for consultants, says Craig Bickel, a managing associate at consulting firm Index Group, Inc. in Cambridge, Mass. As firms slim down by reducing in-house staff, they bring in outside consultants, Bickel says. "People are more driven to the consulting market just when the same forces are creating consulting opportunities."

However, the road to success as an independent consultant is strewn with pitfalls.

### High turnover

There is no exact figure on the survival rate for independent computer consultants, but the Independent Computer Consultants Association (ICCA) in St. Louis reports a 25% annual turnover in membership, even though the group continues to grow. Most of the turnover is attributed to members leaving the

computer consulting business, according to Jack Christensen, executive director of the ICCA.

"Most people start consulting with their first job already lined up, but then they complete the job and it ends," explains Gene Sutton, a consultant since 1976 and president of the Greater Boston chapter of the ICCA.

Once the initial assignment is over, the new consultant has to market himself, hustling to get the next job. "At that point, they fall out pretty quickly," Sutton says. He estimates that as few as 25% of new consultants make it past start-up and sustain an ongoing operation.

Christensen warns that success in independent consulting takes time. "If someone is looking at consulting as an interim thing, he shouldn't be doing it," he says. Successful consulting demands a psychological commitment, he adds. Otherwise, suddenly being on your own without a steady paycheck can be overwhelming.

Last year was a hard one for Seth Metzger from Duxbury, Mass., who turned to independent consulting after working in corporate MIS and then at a computer vendor. After contemplating the move for several years, Metzger was finally pushed into it when the vendor went bankrupt, presenting him

with the opportunity to take on some of its customers.

But after completing his first assignments, Metzger, who specializes in systems integration and writing mainframe applications, found others were not immediately forthcoming and contemplated dropping consulting.

might as well be independent.

Krasnansky, who takes on mainframe databases or telecommunications assignments, also contracts directly with clients but turns to brokers when business is slack. "If I have nothing lined up, I may call five or six agencies and tell them I have time available," he says.

Dave Cassell, a computer consultant broker in Houston and president of the National Association of Computer Consultants, says somecom-

and benefits that employers usually pick up, such as health insurance and paid vacations.

Brokers take commissions of as much as 30% of the consultant's fee, although the details of the arrangement are negotiable. A 1986 addition to the federal income tax code, Section 1706, limits the extent to which independent contractors can rely on a broker for regular assignments.

### Stable and able

One consultant who has reached the point of stability is Morris Segal, a partner in Systems Consulting Professionals (SCP) in Alexandria, Va., which assists systems integrators with chores from drafting proposals to coding. With three other partners, Segal opened SCP four years ago after the group spent two years designing the business part-time while working for a computer vendor.

Unlike most consulting businesses, SCP was successful from the start and has never had trouble sustaining itself. "We haven't had slack periods. We never advertised, and we don't do much selling," Segal says. He attributes the success to the part-time preparation and the experience of the four computer industry veterans with both vendors and MIS organizations.

The group's contacts brought business through word of mouth, Segal says.

Radding is a Boston-based author specializing in business and technology.

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# TRAINING

## Finessing the training contract

You can enter into vendor negotiations well-armed with cost-cutting tools

BY BILL SEBRELL  
SPECIAL TO CW

Should you have a contract with your training vendor? You bet you should. Are training managers experts at negotiating vendor contracts? You bet they aren't.

The corporate contracts department might be able to help negotiate training contracts, but you better lay out the requirements very clearly or the department may go strictly by the vendor's list prices and load things up. The legal department also might help, but it may take forever to get the contract out.

For these reasons, you are liable to find yourself on your own when negotiating contracts with vendors. Therefore, it is important to be aware of steps you can take to protect yourself and reduce your costs.

The most interesting thing about contracts with training vendors is that the only time the vendor is out of the drawer is when something goes very wrong. Unfortunately, in accordance with Murphy's Law, things that go very wrong often are not covered in the contract. But a contract can get some of the niggling issues out on the table and cleaned up before they become major problems.

If you are just going to run a

single three- or five-day class or a course on very short notice, you probably do not need an elaborate contract. Most vendors use standard agreements that cover the basics, including such things as the cost of the course, the number of students, which party will provide hardware, which one will pay for travel and living expenses, the place and time of sessions and cancellation fees.

### Get it in writing

If you offer a lot of single courses through vendors, you may want to ask your legal department to draw up a standard agreement for all of your vendors. It can take the form of a letter. The agreement should ensure that the vendor owns the course and is not delivering another vendor's material and that your company is not liable for any injury to the instructor during travel or delivery of the course.

The agreement should also call for reasonable travel and living expenses, as well as specific standards for air travel, car rentals and taxis, hotel rooms, meals, entertainment, telephone calls and such things as laundry and dry cleaning. An alternative approach is to settle on a reasonable per diem rate and let the vendor fend for himself.

The agreement should specify a schedule for the vendor's arrival in the building, the time classes begin and end and the length of breaks. You should require the vendor to get your written approval to use your name in any advertising or to interview and hire any of your employees. You also may want to address necessary security is-

needs change.

Plan a year's worth of classes over the course of your annual budget but set the contract for an 18-month term. This step provides a hedge: It allows you to get courses into the next budget year should something go wrong with your current budget.

Do not be specific about dates. Allow the vendor to set the schedule for each quarter with your approval. In return, you should get a price break for providing the vendor with added flexibility.

Be specific about the number

There are some other steps that might help reduce the rate, such as printing handouts yourself (perhaps for the vendor to use at other companies as well), providing graphic support, giving the vendor access to hardware to develop new courses and piloting new courses for the vendor.

### Rent-a-class

You also could let the vendor sell seats in your classes to other companies. You could let the vendor use your classes to groom new or junior instructors or, let the instructors attend classes you run on your own. You can offer to provide references or allow the vendor's prospective customers to sit in on your classes.

The timing of payments also can make a difference. They might be required within 30 days of the course or up-front at the beginning of the year.

The bottom line is that contracts ensure long-term relationships with your vendors. Both parties would like to see a lasting and beneficial partnership, and there are innumerable opportunities to make that partnership successful. The objective of the contract is to provide quality service at a fair price on a regular basis, with everyone clearly aware of the rules.

Sebrell is a vice-president at Data Base Management, Inc., a subsidiary of American Management Systems, Inc. in Manchester, Conn.

**V**OU DO NOT get a discount unless you ask. You are contracting for a fixed number of days that the vendor can count on, so you should get a discount.

such as being a U.S. citizen.

For the best price breaks and for more long-term relationships, you should consider entering into annual contracts with your vendors. Each one should be unique to a vendor and would probably include all of the items noted in the standard letter agreement. You should also do the following:

• Negotiate a specified number of teaching days to be delivered during the period of the contract — not specific courses. This strategy provides the flexibility to modify what you offer to your internal clients should their

of students in a class and how you handle overflows. For example, you pay a flat fee for every student over the maximum or you dip into future teaching days.

• Be specific about when you can cancel a class and what you pay if you cancel beyond the limit.

There are some other things to consider to help you get a better rate from the vendor. You do not get a discount unless you ask.

You are contracting for a fixed number of days that the vendor can count on, so you should get a discount.

Also determine what happens to your rate if you conduct more classes than called for in the contract.

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Company president Alec Gindis was impressed with industry reaction after a news story announcing XCOM 6.2 appeared in *Computerworld*. So when Spectrum began implementing its marketing strategy for the new product, he considered *Computerworld* a key resource.

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**Alec Gindis**  
President  
Spectrum Concepts, Inc.

## COMPUTERWORLD RESPONSE CARD DECKS

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## TRENDS

## RISC vs. CISC

When Jim Geers, president of AIM Technology, Inc., recently set out to test reduced instruction set computing (RISC) systems against complex instruction set computing (CISC) systems, he said he expected the RISC contenders to outperform the CISC challengers.

But he did not expect the RISC systems to beat the CISC ones as soundly as they did. In a series of Unix-based tests, the RISC systems consistently doubled and tripled the performance and capacity of CISC architecture machines.

Geers noted that for all their better numbers, the RISC systems still lack in the applications software area when put up against conventional processors.

"It appears to be a trade-off of performance and third-party software," he said. "If you're in the scientific area, then the RISC performance will be attractive. If you're in a business environment, then third-party applications are likely more important."

To test the two processor types, AIM started with a Digital Equipment Corp. VAX-11/780 as a reference point and judged the contenders against it. The test included only Unix-based systems for both sides. On the conventional side, Intel Corp. 80386-based processors and Motorola, Inc. 68030 processors were used. On the RISC side, offerings from Sun Microsystems, Inc., Hewlett-Packard Co. and Mips Computer Systems, Inc., were used.

For the system performance test, AIM established the VAX-11/780 as operating at 100%. Against that 100%, the RISC systems tested at an average of 68.6%. The CISC challengers averaged 30.8%.

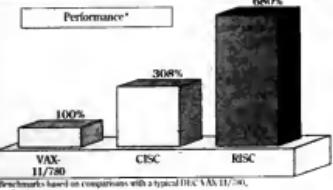
The RISC system average was boosted primarily by the performance of the HP system, which came in at 1.004%.

To establish an average number of users that the two system types could accommodate, AIM used a 12-user VAX-11/780 configuration as the reference point. The RISC systems supported an average of 91 users when compared with that base, and the CISC systems supported an average of 37 users.

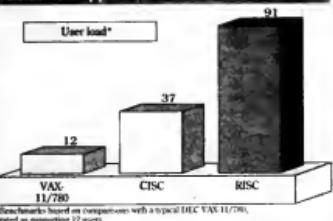
Geers said a comparison of processor speed alone would not be fair to users because they rely on other system components as well, such as disk memory and floating-point performance.

ROSEMARY HAMILTON

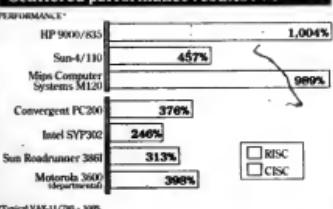
## RISC systems outran CISC...



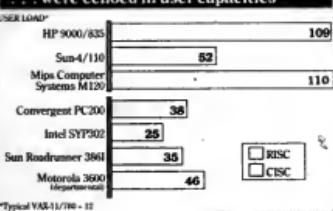
## ... and supported more users



## Scattered performance results



## ... were echoed in user capacities



SOURCE: AIM TECHNOLOGY, INC.  
C.W. CHARTS

## INSIDE LINES

Coming soon, a choice in Unix mainframes. Just when Andahl thought it had the Unix mainframe market all sewn up after National Advanced Systems closed down its external Unix development shop last year, a new competitor shows up on the docket. For \$1.25 million, Andahl Technology is expected to expand its RISC-based Unix mainframe line to low-end mainframes. And, unlike Andahl's proprietary brand of Unix, Pyramid's is said to be based on an open standard.

And, or . . . Not only is Pyramid entering the mainframe world, Gene Andahl's latest start-up, Andor, is still intent on getting a prototype of its low-end IBM-compatible mainframe operating by this summer. Look for availability of this supposedly tiny system, with a price tag aimed at undercutting low-end IBM 3090s by late 1990.

Nothing personal. It's costing DEC customers an additional \$3,300 in hardware for the Vaxstation 3100 to run Dewindows, said John Logan, vice-president of the Aberdeen Group, a market research firm in Boston. The "personal VAX," a diskless Vaxstation with a processor capable of 3 MIPS and a monochrome terminal, would have been sold for \$5,500, Logan said. But to ensure that users can run the memory-demanding Dewindows, DEC loaded the system with 8M bytes of memory for an \$8,000 price tag. For customers not interested in Dewindows, the 1-MIPS Vaxstation 2000 with 4M bytes of memory sells for only \$5,200.

Maybe later. As expected, Apple did not make any communications announcements at Macworld Expo, but word has it that Apple's next big batch of connectivity unveilings is slated for Feb. 8 at Dexpo. Tokentalk, Apple's token-ring card, could be slated for release in April, at either Macfest in Chicago or a Mac show in Washington, said an analyst quoting an Apple insider. This much-awaited adapter has reportedly undergone three revisions so far and will not be released until Apple has all its support pieces in place, he said. Another source adds that Apple has had a working token-ring card for about a year.

Sitting down to tea. X/Open is expected to announce today new members, one of which will be a Japanese computer maker. (Fujitsu is already a member.) X/Open's current member roster consists of seven Open Software Foundation members, seven Unix International members, and one neutral firm (Necra Data). With that lineup, one might imagine that it could be hard to reach a consensus on some issues. The new members are likely to shift the balance of power by adding more nonpartisan influence.

We'll send congratulations. Apollo has scheduled a press conference for next week. Anybody showing up for something new and completely different is in for a big surprise. The company apparently intends to "announce" that it is now ready to deliver the graphics component on its RISC-based workstations; the workstations were announced back in March 1988, and the graphics component was supposed to be ready by the end of the year. Although the Chelmsford, Mass.-based firm is all set to trumpet the 10,000 series as the industry's first RISC-based graphics workstation, it seems that there's a little Mountain View, Calif.-based company called Silicon Graphics that has been including Mips Computer Systems RISC CPUs on its Iris 4D workstations for some time now. Ardent Computer also has a similar RISC-based machine. All in all, it makes you wonder just how gallible Apollo thinks its customers are.

Hold back the dancing person. DEC's recent desktop extravaganzas seem to have artistic lengths with a multimedia presentation and an opening video that portrayed dancers in an office setting complete with DEC workstations. Not seen, however, were live dancers who were to act out the video. They were canceled at the last moment after somebody gave it a second thought. If you know the details to this messy inside political scenario, call News Editor Peter Bartelborth at the hot line number: 800-343-6474 or 508-873-0700, and we'll let everyone in on it.



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